Statistical Analyses of Wetland Metrics for Biocriteria Development in Vermont

Project Summary

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TETRA TECH

Background:

The Vermont Department of Environmental Conservation (VT DEC) Wetland Bioassessment Program uses the VT Natural Heritage Inventory's Natural Community Classification System. This allows assessment of plant community integrity along a disturbance gradient that accounts for natural community characteristics. For example, condition comparisons should be made between one black spruce bog and another black spruce bog, or between one wet clayplain forest to another wet clayplain forest.

This project evaluates the validity of the classification system in the context of assessment tools. The steps taken to address the evaluation included calculation of plant community metrics and comparison of metric values in least-disturbed reference sites among site classes. The site classification system can be simplified to recognize similarities among classes and to allow development of assessment tools. Combining similar classes, with similar reference metric distributions, can result in precise reference condition characteristics and robust metric responses for assessment. This also reduces unnecessary complexity in classification.

Survey Types

VT DEC recorded data from several survey types. We explored data characteristics to determine which types would be applicable for the intended analyses. We pursued data sets that had plentiful samples, similar effort (measured as plant richness), and quantitative measures (% cover). After reviewing the 10 survey types in the data set, we decided to use three data sets that met these criteria: Heritage, Wetlands Heritage, and Wetlands Transect (Figure 1). We considered Heritage Transect, but richness was consistently lower than the others. The Species List data set had several samples, but did not quantify coverage. We can revisit other types after initial analysis.

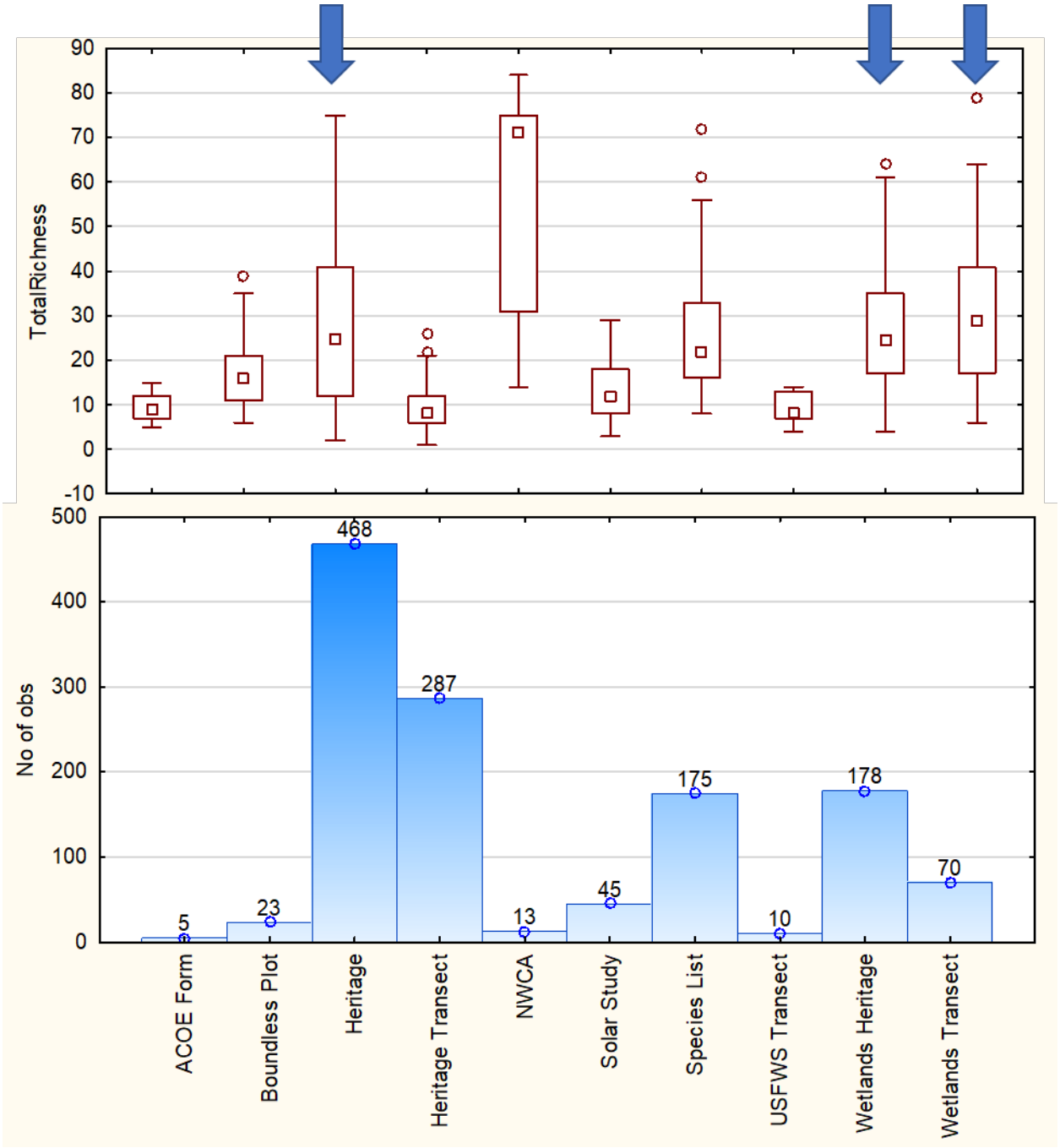


Figure 1. Plant species richness and number of samples for 10 survey types in the VT DEC database.

Site Disturbance Designations

VT DEC identified sites that they considered to be relatively undisturbed reference. The designation considered certain aspects of the Vermont Rapid Assessment Method (VRAM) assessments. VT DEC recommended that all Heritage sites should be considered reference unless

otherwise marked in the data set. Sites without existing designations by VT DEC and not Heritage were designated as 'ambiguous', meaning that there was uncertainty about the site disturbance conditions. After applying these designations, most reference sites were from the Heritage survey type (Table 1).

Table 1. Wetland site counts by disturbance designation and survey type.

Survey Type	Reference	Ambiguous	High Disturbance
Heritage	450	11	7
Wetlands Heritage	55	64	59
Wetlands Transect	1	64	5

Metric Calculations

The survey data included two data tables that were used in metric calculations. The first table included site/sample identifiers, plant species, and species enumeration. The second table included several characteristics of each species (traits). The traits designated a Coefficient of Conservatism **(**CoC, general tolerance to stressors), wetness affinity, native status, and monocotyledon division. Most traits were assigned by VT DEC, though Tetra Tech completed some incomplete 'Native' entries based on information from the Native Plant Trust[1]. Most metrics were counts of species, percentages by trait, or weighted average of trait values (Table 2).

[1] https://gobotany.nativeplanttrust.org

Table 2. Wetland metric descriptions that were tested in the analysis. Continued on the following page.

Metric Abbreviation	Metric Description
TotalRichness	The total number of vascular plant taxa in the sample list
nt_Native	The number of native vascular plant taxa (using the "Native" field in the "Species Biocriteria Index" database table)
nt_NativeMonocot	The number of native and monocot vascular plant taxa (Monocot designation from NWCA2011_planttaxa.csv downloaded from the EPA NARS website)
nt_Senstv710	The number of vascular plant taxa with "Art CoC" designations of 7 - 10
nt_Toler04	The number of vascular plant taxa with "Art CoC" designations of 0 - 4 (includes non-natives, excludes taxa without designations)
nt_WetOblig35	The number of vascular plant taxa with "ACOE Wetness" designations of 3 - 5
nt_WetUpl-5-3	The number of vascular plant taxa with "ACOE Wetness" designations of -5 - -3
pt_Native	The percent of all native vascular plant taxa (using the "Native" field in the "Species Biocriteria Index" database table)
pt_NatvMonocot	The percent of all native and monocot vascular plant taxa (Monocot designation From nwca2011_planttaxa.csv downloaded from the EPA NARS website)
pt_Senstv710	The percent of all vascular plant taxa with "Art CoC" designations of 7 - 10
pt_Toler04	The percent of all vascular plant taxa with "Art CoC" designations of 0 - 4 (includes non-natives, excludes taxa without designations)
pt_WetOblig35	The percent of all vascular plant taxa with "ACOE Wetness" designations of 3 - 5
pt_WetUpl-5-3	The percent of all vascular plant taxa with "ACOE Wetness" designations of -5 - -3
SumOfTotalCover	Sum of "Cover" of vascular plants in the "Plot_Data" database table
pc_Native	Percent of total "Cover" of native vascular plants in the "Plot_Data" database table
pc_NatvMonocot	Percent of total "Cover" of native monocot plants in the "Plot_Data" database table
pc_Senstv710	Percent of total "Cover" of vascular plants with "Art CoC" designations of 7 - 10
pc_Toler04	Percent of total "Cover" of vascular plants with "Art CoC" designations of 0 - 4 (includes non-natives, excludes taxa without designations)
pc_WetOblig35	Percent of total "Cover" of vascular plants with "ACOE Wetness" designations of 3 - 5
pc_WetUpl-5-3	Percent of total "Cover" of vascular plants with "ACOE Wetness" designations of -5 - -3
RelImpNative	Relative importance of native taxa, calculated as ([pc_Native]+[pt_Native])/2

RelImpSenstv710	Relative importance of sensitive taxa, calculated as ([pc_Native]+[pt_Native])/2
wac_tolerance	Average CoC weighted by vascular plant cover
Cover_Weighted_CoC	Series of Queries by CH: Cover_Weighted_CoC: [Qry_CoverWgtCoC2]![SumOfCover CoC]/[Qry_CoverWgtCoC2]![AvgOfSumOfCover]
wat_tolerance	Average CoC by vascular plant taxa
FQAI	FQAI: Sum([Art CoC])/([TotSpecies_PositiveCounts]^0.5); (as described by Magee 2019 for the VMMI) (taxa without Art Coc designation are interpreted as non-native 0)
FQI	FQI: Avg([Art CoC])*([TotSpecies_including0count]^0.5)
FQI_weighted	FQI_weighted: Avg([Art CoC]*[TotalCover])*([TotSpecies_including0count]^0.5)
VMMI	Calculated from 4 metrics, per Vegetation Multi-Metric Index (VMMI) Magee et al.(2020); FQAI, RelImpNative, nt_Toler04, pc_NatvMonocot
Hprime	Shannon-Wiener index (base 2) (diversity index based on both % cover and taxa richness): H' = -Sum((([Cover]/[SumOfTotalCover])*Log([Cover]/[SumOfTotalCover]))/Log(2))

Data Pooling

Analysis could continue for each separate data set or for a combination of data sets. We tested opportunities for pooling the data sets by comparing metric distributions among data sets, concentrating on the reference sites. This was first done through visual inspection of box plots. Distributions with substantial overlap of interquartile ranges, especially in reference sites, indicated that the survey type was not affecting the metric values and that data sets might be pooled for analysis. The same types of metric plots were used to estimate metric sensitivity among disturbance categories. Several metrics had similar reference metric distributions (Figures 2 and 3, and Appendix A).

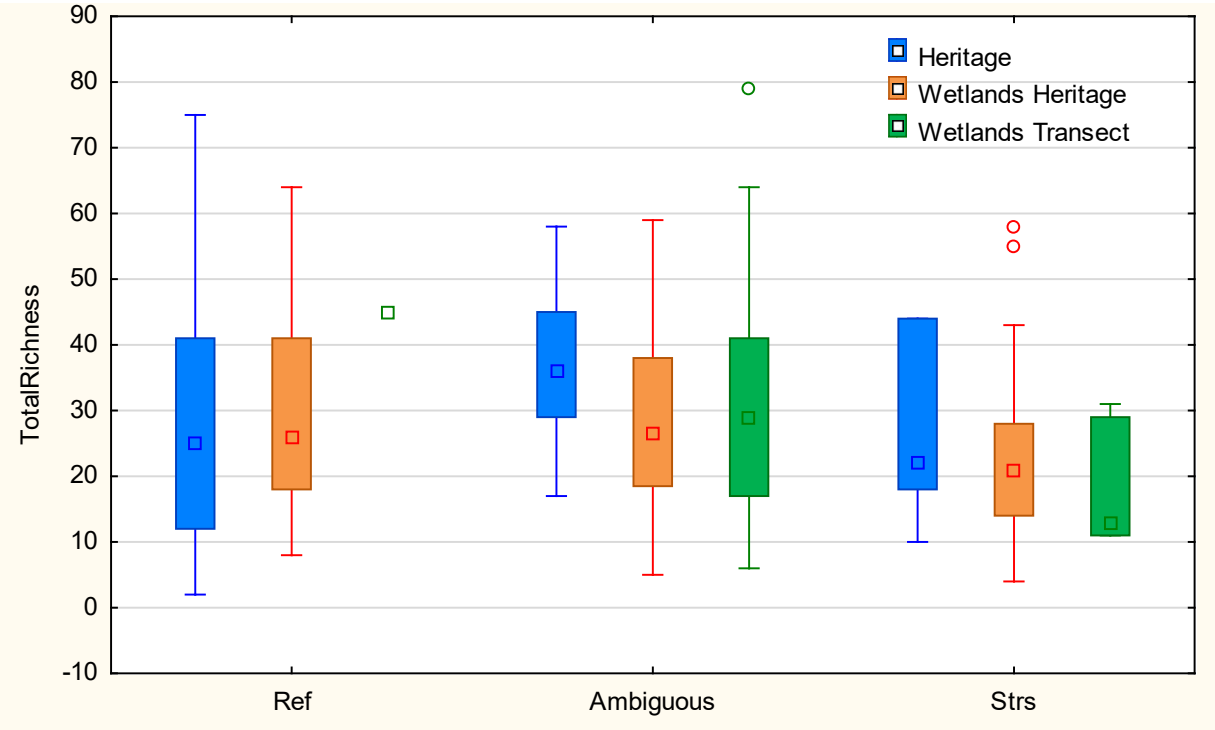
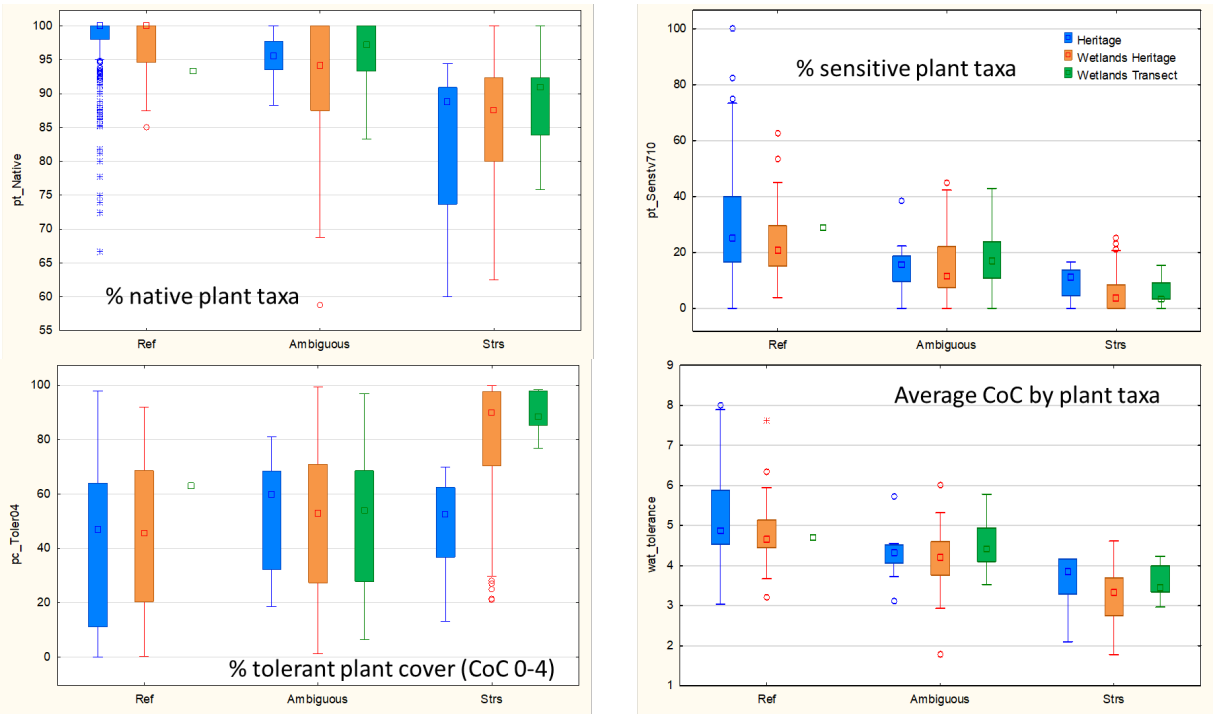


Figure 2. Distribution of Total Richness metric values among data sets and disturbance categories. Boxes represent interquartile ranges, whiskers are non-outlier range, and central marker is the median.



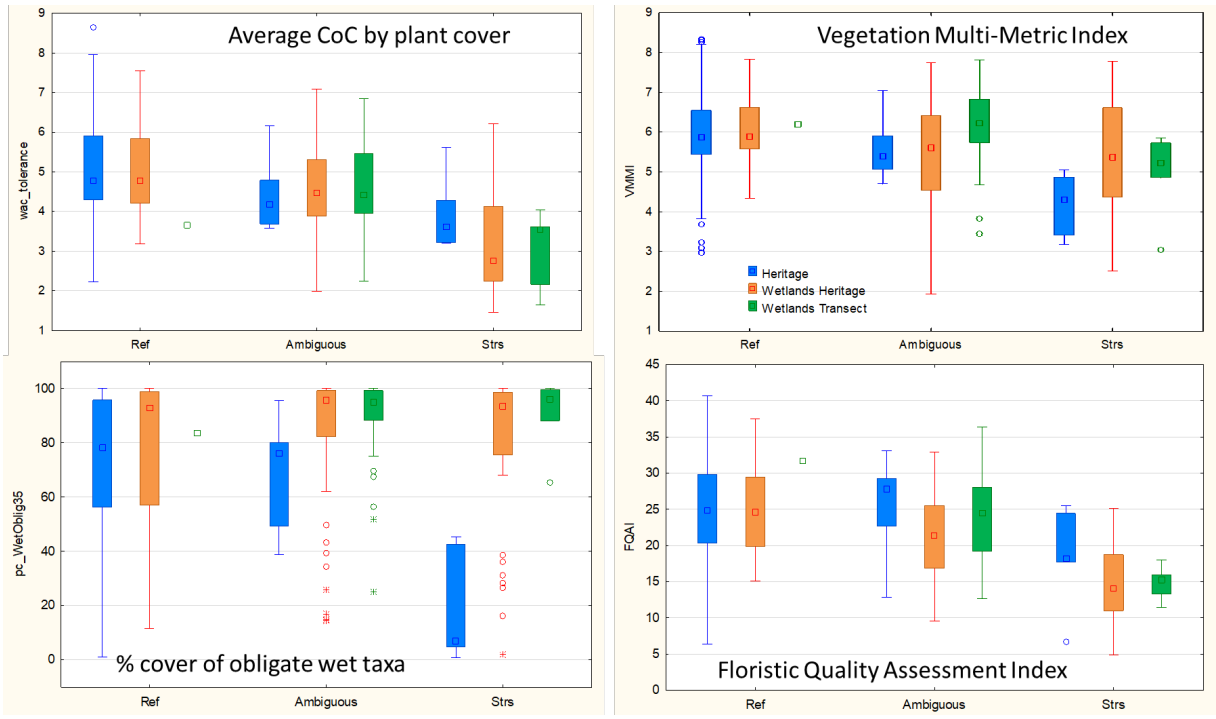


Figure 3. Distribution of a selection of metric values among data sets and disturbance categories. Boxes represent interquartile ranges, whiskers are non-outlier range, and central marker is the median.

We also tested reference metric distributions between the Heritage and Wetlands Heritage programs using a t-test. The single reference Wetland Transect site was not included. Heritage and Wetland Heritage reference sites have similar distributions in all but three metrics based on p values > 0.05 (Table 3). The disparate metrics can be avoided for assessments (number of native monocot taxa, number of obligate wetland taxa, and the weighted FQI). We assumed that the Wetland Transect survey data could be pooled based on similar distributions in ambiguous disturbance sites (visual interpretation of metrics).

Table 3. Results of t-tests of reference metric distributions among Heritage and Wetlands Heritage surveys.

Metric	Mean Heritage	Mean WetHer	t-value	p
nt_Native	27.04	42.00	-0.91	0.36
nt_NativeMonocot	5.54	13.00	-2.06	**0.04**
nt_Senstv710	6.76	13.00	-1.57	0.12
nt_Toler04	13.80	21.00	-0.69	0.49
nt_WetOblig35	15.58	35.00	-2.20	**0.03**
nt_WetUpl-5-3	5.81	1.00	0.80	0.43
pt_Native	98.14	93.33	1.11	0.27
pt_NatvMonocot	22.19	28.89	-0.58	0.56
pt_Senstv710	29.76	28.89	0.05	0.96
pt_Toler04	44.25	46.67	-0.13	0.90
pt_WetOblig35	63.89	77.78	-0.63	0.53
pt_WetUpl-5-3	16.14	2.22	0.98	0.33
SumOfTotalCover	142.02	44.10	1.75	0.08
pc_Native	99.46	97.96	0.50	0.61
pc_NatvMonocot	18.64	30.61	-0.55	0.58
pc_Senstv710	24.70	5.22	0.79	0.43
pc_Toler04	41.35	63.04	-0.76	0.45
pc_WetOblig35	72.42	83.67	-0.43	0.67
pc_WetUpl-5-3	10.36	0.00	0.69	0.49
RelImpNative	98.80	95.65	0.93	0.35
RelImpSenstv710	27.23	17.05	0.52	0.60
wac_tolerance	5.09	3.65	1.24	0.22
Cover_Weighted_CoC	5.02	3.65	1.14	0.25
wat_tolerance	5.20	4.71	0.46	0.65
FQAI	24.97	31.60	-0.98	0.33
FQI	24.98	31.60	-0.98	0.33
FQI_weighted	149.84	24.00	2.11	**0.04**
VMMI	5.97	6.20	-0.26	0.79
Hprime	2.99	4.42	-1.28	0.20

Classification Schemes

VT DEC has associated wetland sites with several classification schemes.

Heritage Crossover:
Heritage Crossover wetland types are varied and specific. The specific types can be grouped into more general categories by descriptive label. The natural communities used are described in https://vtfishandwildlife.com/wetland-woodland-wildland. These represent relatively undisturbed ecosystems. Mapping units for more disturbed wetlands have been designated by VT DEC.

Wetlands Formation:
Wetlands Formation wetland types are varied and specific. The specific types can be grouped into more general categories by descriptive label. The Wetland Formation classes were generally aligned with, though more refined than, the Cowardin classes.

Cowardin Class:
Because the Cowardin classes were designated by a nested code instead of narrative label, it was possible to simplify and group the *basic* Cowardin classes:

- FO = Forested
- SS = Shrub/Scrub
- EM = Emergent

Classifications Evident in VT Wetlands

Based on the analysis of metric distributions in reference sites, the Heritage, Wetland Heritage, and Wetland Transect survey sites were pooled for an analysis of a classification scheme for Vermont wetlands. We explored metric discrimination among disturbance categories in all sites and in various wetland classes to determine the feasibility of selecting a functional classification scheme. For simplicity of grouping, we first checked the basic Cowardin classes; FO = Forested, SS = Shrub/Scrub, and EM = Emergent. Several metrics showed discernable responses to the disturbance categories and the wetland types (Figure 4). All but four metrics had different reference distributions in at least one of the Cowardin classes (ANOVA $p<0.05$, Table 4). There were some differences among habitat and water quality variables among Cowardin classes and disturbance categories (Figure 5).

Table 4. ANOVA statistics for comparisons of reference distributions among Forested, Shrub/Scrub, and Emergent Cowardin wetland classes.

Variable	F	p	Variable	F	p
TotalRichness	24.75	0.00	pc_NatvMonocot	86.90	0.00
nt_Native	24.52	0.00	pc_Senstv710	10.26	0.00
nt_NativeMonocot	1.88	**0.16**	pc_Toler04	16.54	0.00
nt_Senstv710	10.34	0.00	pc_WetOblig35	41.29	0.00
nt_Toler04	23.75	0.00	pc_WetUpl-5-3	13.79	0.00
nt_WetOblig35	3.15	0.05	RelImpNative	1.41	**0.25**
nt_WetUpl-5-3	31.40	0.00	RelImpSenstv710	13.29	0.00
pt_Native	0.59	**0.56**	wac_tolerance	24.44	0.00
pt_NatvMonocot	26.08	0.00	Cover_Weighted_CoC	27.30	0.00
pt_Senstv710	9.40	0.00	wat_tolerance	11.57	0.00
pt_Toler04	8.88	0.00	FQAI	20.65	0.00
pt_WetOblig35	56.15	0.00	FQI	19.81	0.00
pt_WetUpl-5-3	32.28	0.00	FQI_weighted	0.70	**0.50**
SumOfTotalCover	24.48	0.00	VMMI	51.56	0.00
pc_Native	3.40	0.04	Hprime	24.27	0.00

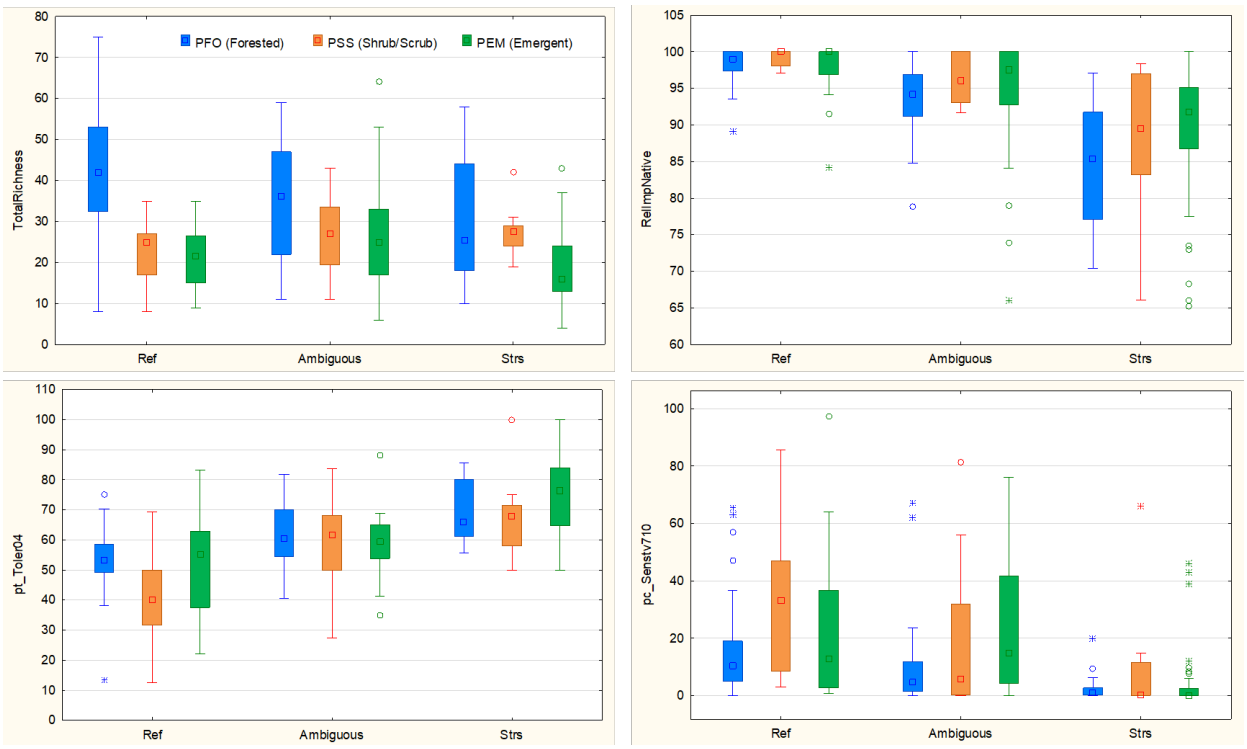


Figure 4. Selected metric distributions by disturbance category and Cowardin wetland class, showing total plant richness, relative importance of native species, percent tolerant taxa, and percent sensitive cover.

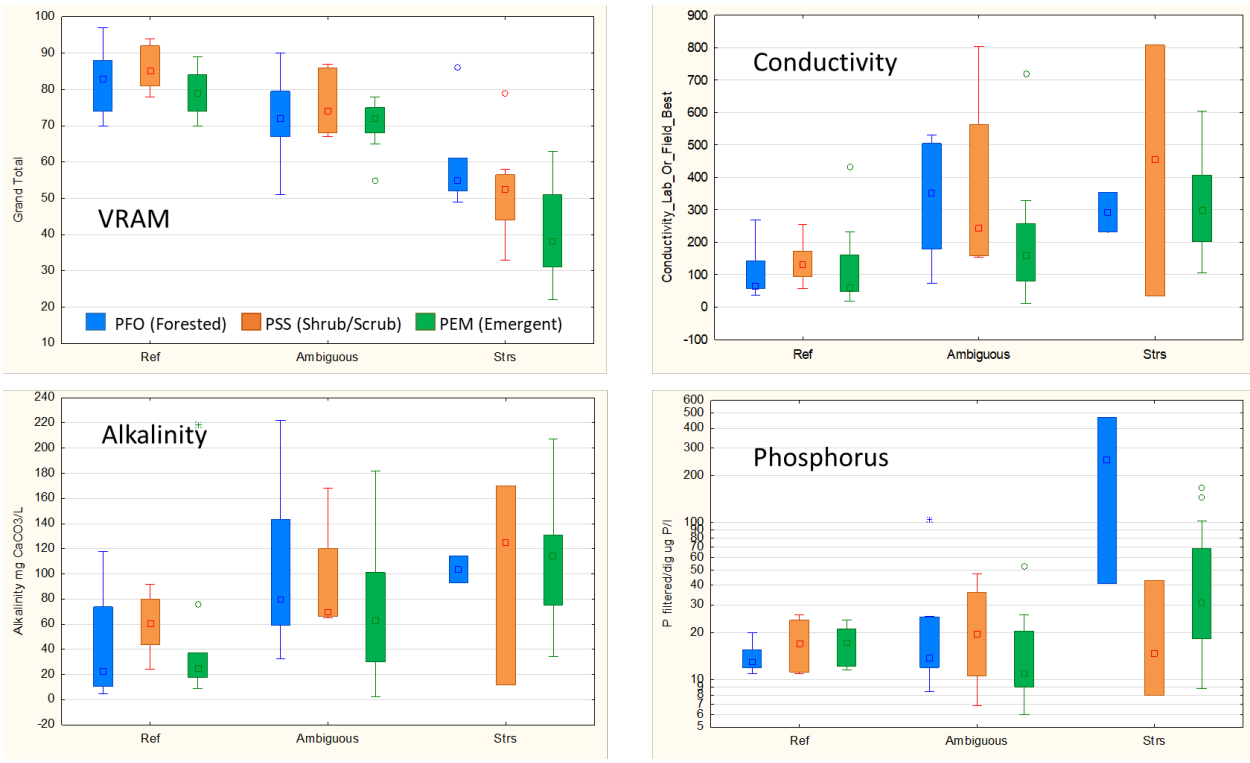


Figure 5. Distributions of Vermont Rapid Assessment Method (VRAM) and water quality variables among disturbance categories and Cowardin wetland classes.

After seeing that there were differences among reference metrics in Cowardin classes, we explored other classification schemes to determine the most reliable classification system. Explorations included examination of potential classes using metric distributions in and plots of plant community similarity in non-metric multidimensional scaling (NMS) of taxa presence. Heritage Crossover and Wetlands Formation wetland types are too varied (too many distinct classes) for simple classification. These might be simplified by grouping similar classes that had similar metric distributions or plotted in close proximity in the NMS diagrams. A final consideration for selecting a classification scheme included examination of metric discrimination of disturbance categories among potential classes.

With 504 reference sites, Cowardin classes give a strong signal of natural taxa composition in the NMS diagram (Figure 6). However, other wetland type grouping based on combinations of Heritage Crossover classes also showed distinction among reference wetland communities. There were 40 Wetland Crossover types that were plotted in reference site NMS diagrams. In successive experimental combinations of groupings for wetland types that plotted together in the ordinations, a preliminary classification scheme was developed and scrutinized for further refinement (Figure 7, Table 5).

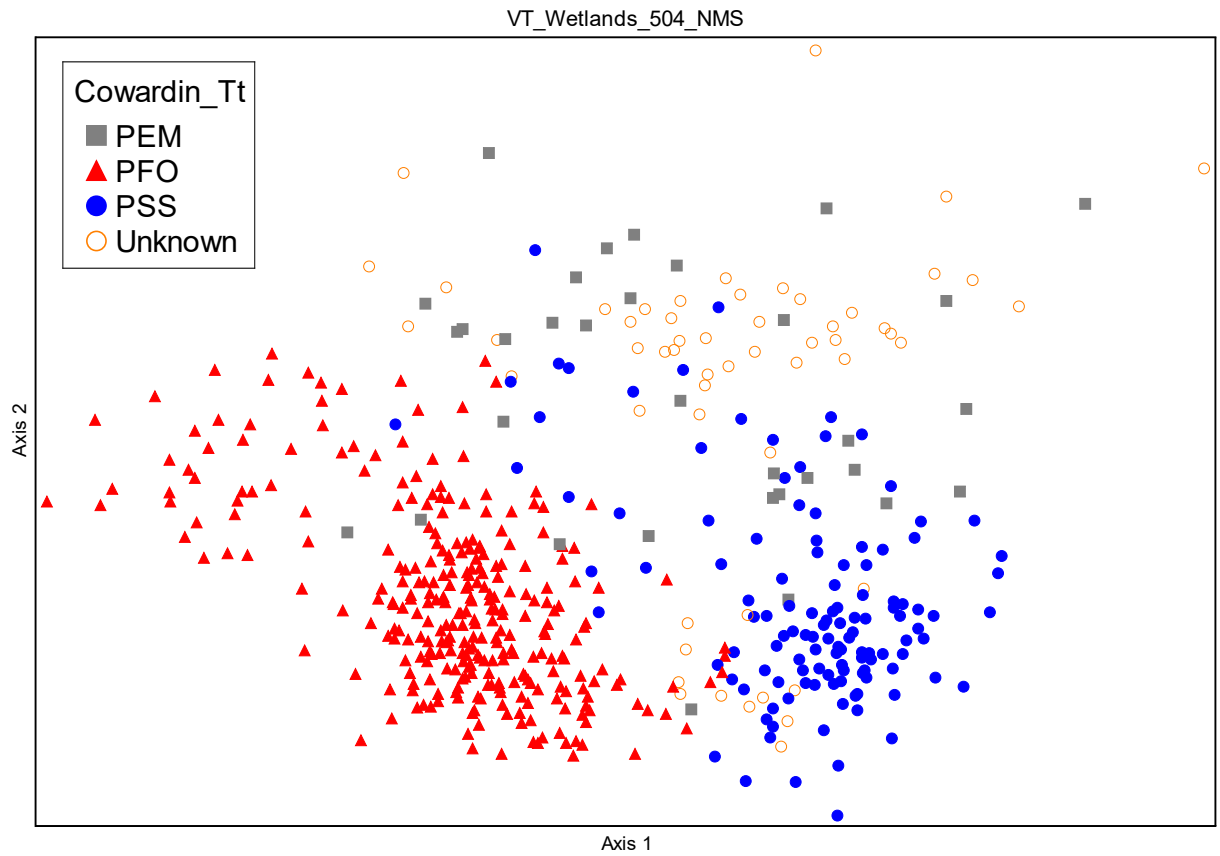


Figure 6. NMS diagram of reference wetland plant communities in Cowardin classes.

Table 5. Preliminary wetland class groupings based on combinations of Heritage Crossover wetland types. Continued on the following page.

Hertitage Crossover Group	Heritage Crossover (Cowardin) Class	# Ref Sites
Beaver Wetland	Beaver Wetland (FO, SS, EM)	12
Bog, Poor Fen	Dwarf Shrub Bog (SS)	33
	Pitch Pine Woodland Bog	3
	Poor Fen (SS)	76
Intermediate, Rich Fen	Intermediate Fen (EM)	16
	Rich Fen (EM)	38
Floodplain	Lakeside Floodplain Forest (FO)	4
	Silver Maple-Ostrich Fern Riverine Floodplain Forest (FO)	13
	Silver Maple-Sensitive Fern Riverine Floodplain Forest (FO)	3
	Sugar Maple Floodplain Forest (FO)	19
	Wet Clayplain Forest (FO)	2
Maple, Cedar Swamp	Boreal Cedar-Sphagnum Basin Swamp (FO)	15

	Calcareous Red Maple-Tamarack Swamp (FO, SS)	15
	Hemlock-Balsam Fir-Black Ash Seepage Swamp (FO, EM)	33
	Hemlock-Northern White Cedar Swamp (FO)	1
	Hemlock-Sphagnum Acidic Basin Swamp (FO)	3
	Maple-Green Ash Swamp (FO)	12
	Northern White Cedar Sloping Seepage Forest (FO)	5
	Northern White Cedar Swamp (FO)	49
	Red Maple-Black Ash Seepage Swamp (FO)	36
	Red Maple-Black Gum Swamp (FO)	8
	Red Maple-Northern White Cedar Swamp (FO)	15
	Red Maple-Sphagnum Acidic Basin Swamp (FO, EM)	14
	Red Maple-White Pine-Huckleberry Swamp (FO)	3
	Wet Sand-Over-Clay Forest (FO)	3
Spruce Swamp	Black Spruce Swamp (FO)	**9**
	Black Spruce Woodland Bog (FO, SS, EM)	11
	Lowland Spruce-Fir Forest (FO)	1
	Red Spruce-Cinnamon Fern Swamp (FO)	12
	Spruce-Fir-Tamarack Swamp (FO)	12
Seep	Northern Hardwood Seepage Forest (FO)	2
	Woodland Seep (FO, EM)	6
Other	Alder Swamp (SS)	3
	Alluvial Shrub Swamp (SS)	1
	River Cobble Shore	3
	Rivershore Grassland	1
	Sedge Meadow (EM)	4
	Shallow Emergent Marsh (EM)	1
	Sweet Gale Shoreline Swamp (SS)	3
	Unrecorded	3
	Wild Rice Marsh (EM)	1

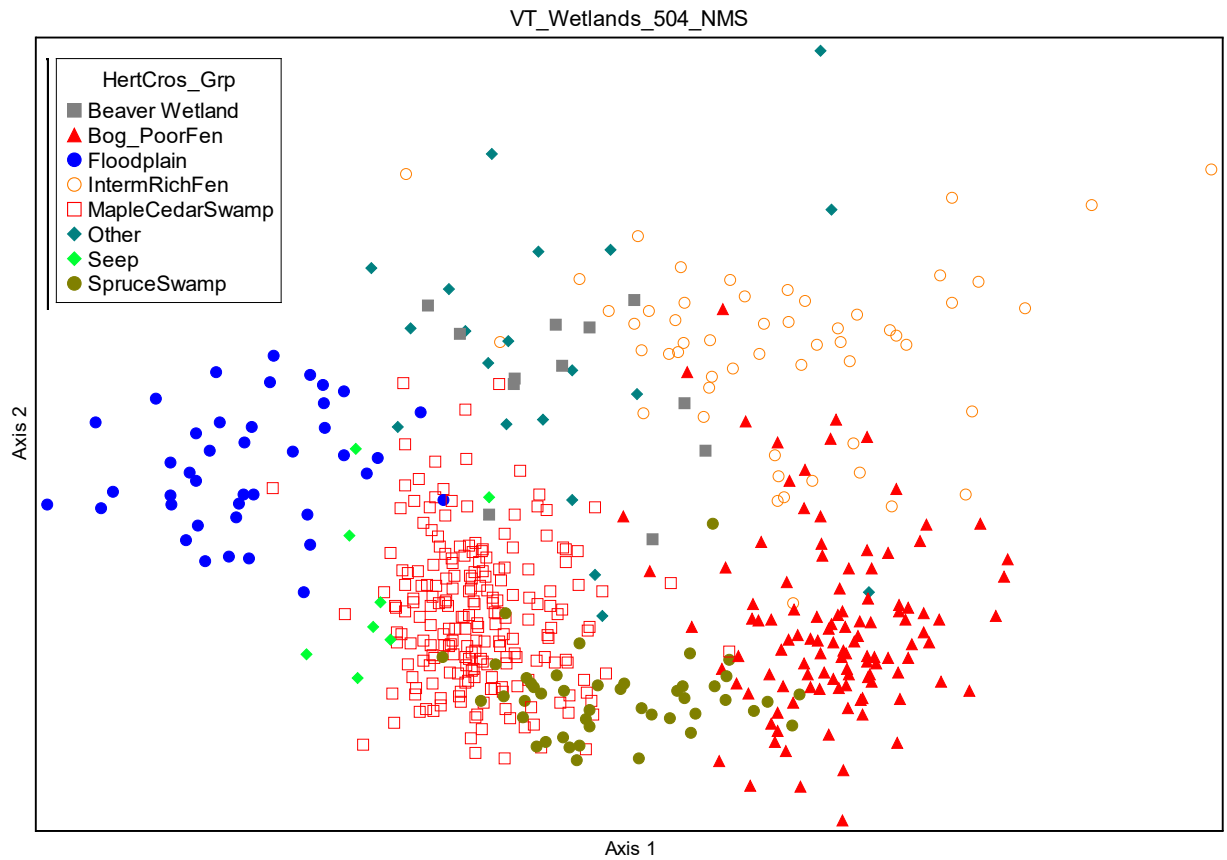


Figure 7. NMS diagram of reference wetland plant communities in preliminary wetland class groupings.

After reviewing selected metric distributions (Figure 8, Appendix B), additional class combinations became apparent. Metric distributions were similar for successively grouped metrics categories: Maple, Cedar Swamp + Seep; Intermediate Rich Fen + Bog, Poor Fen; and Beaver Wetland + Other. This resulted in five wetland classes proposed for continued analysis, as follows:

- Maple, Cedar Swamp + Seep
- Spruce Swamp
- Floodplain
- Intermediate Rich Fen + Bog, Poor Fen
- Beaver Wetland + Other

These classes showed good internal similarity in reference taxa composition (Figure 9), distinction of metric distributions among classes, good metric discrimination with stressed sites (Appendix C), and sufficient sample sizes for index analysis. Within each class, site characteristics could be discerned (Appendix D). However, it was necessary to lump wetlands of

similar metric characteristics to evaluate metric discrimination across disturbance types in relatively similar wetland settings.

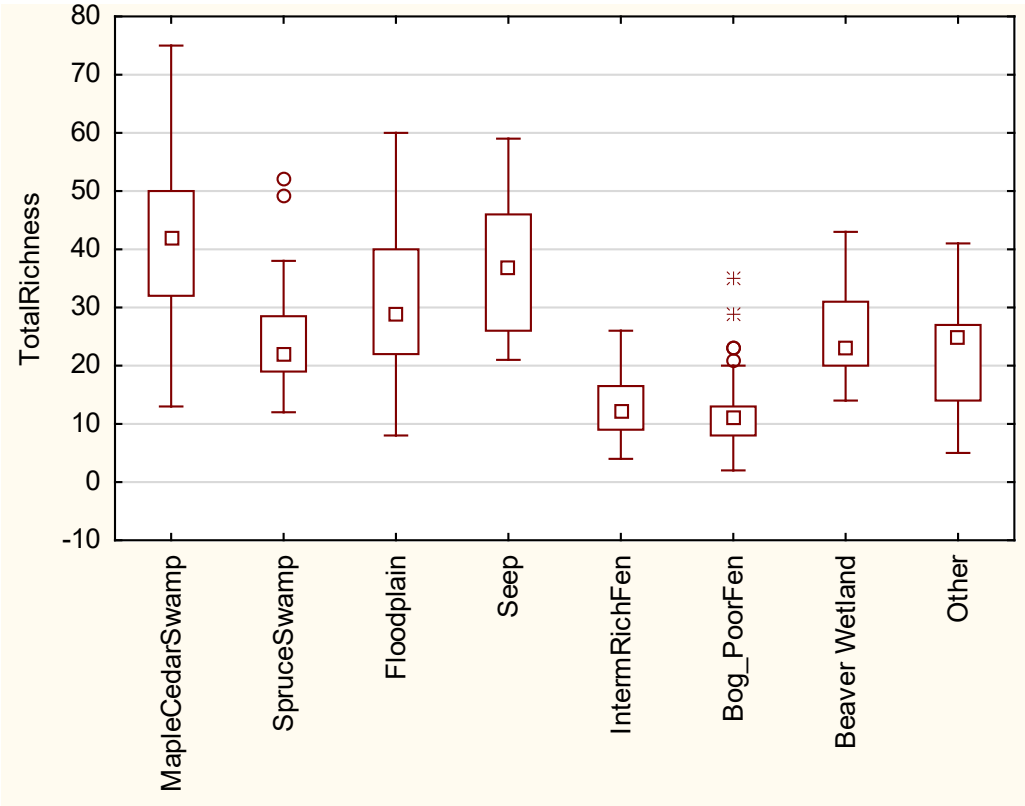


Figure 8. Distributions of total plant richness per wetland by preliminary wetland grouping.

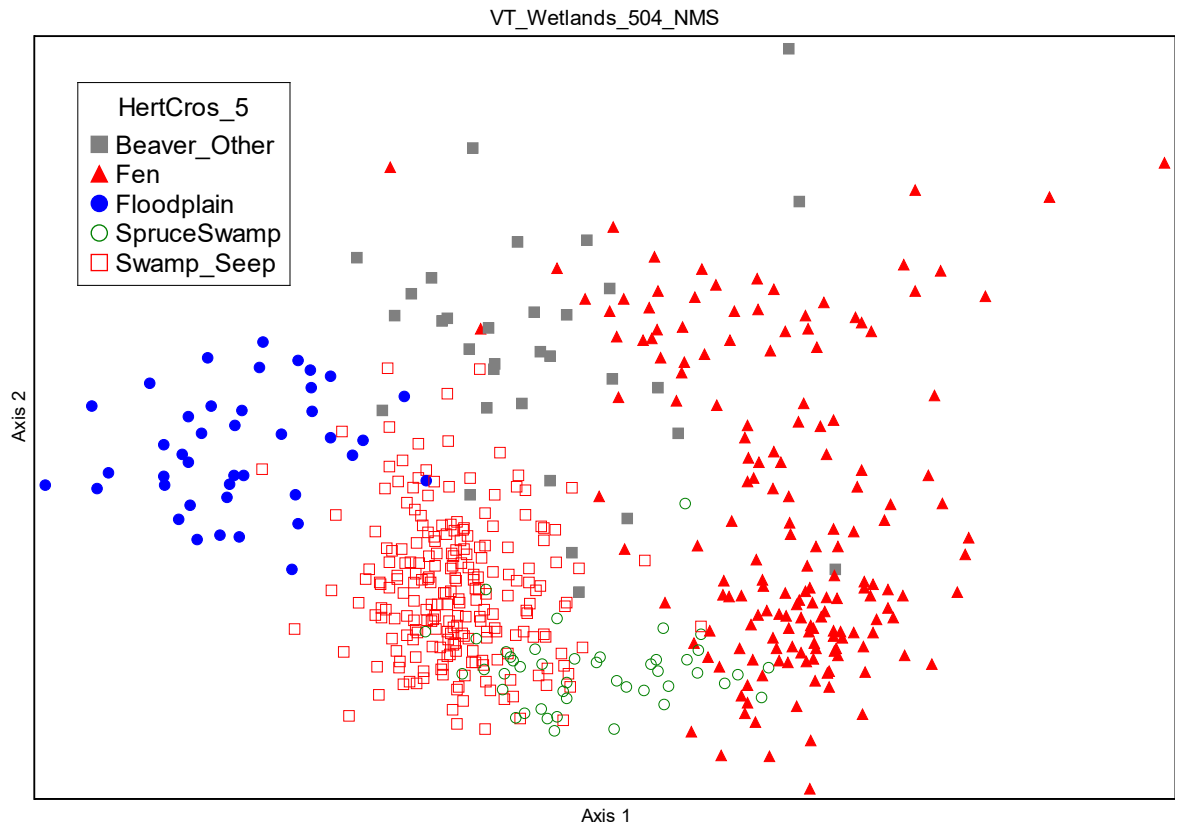


Figure 9. NMS diagram of reference wetland plant communities in final/proposed wetland classes.

Metric Discrimination of Disturbance

Based on visual inspection of box plots, many metrics discriminate reference and stressed sites in the selected survey types and all wetland types (Appendix C). Metric Discrimination Efficiency (DE) is the percentage of stressed sites that are outside the intraquartile reference distribution in one direction (% lower than the 25th percentile or % higher than the 75th percentile). We calculated DE and trend with disturbance for all sites and for each site class (Table 6). There were few stressed sites in the Fens and the Swamp/Seep wetland types. There were no stressed sites Spruce Swamp type. With few or no samples, discrimination results for metrics in these types are not robust indications.

There were 15 metrics that consistently decreased with increasing stress (DE >50%) in all wetland types (except the fens). In addition, there were two metrics that increased consistently, including the % cover of native monocotyledons. The sensitive metrics were all calculated based on native status and the CoC trait. Three metrics with especially strong signals relative to disturbance are the percent cover of native species, the relative importance of native species, and the weighted average of species CoC values. Existing wetland plant indices (weighted FQI, FQI, FQAI, and VMMI) are sensitive to disturbance, but not consistently over the site types. Only the weighted FQI was responsive in all wetland types, but the DE was lower overall and in the Beaver/Other type compared to the unweighted FQI and the FQAI.

Table 6. Discrimination efficiency (DE) and trend with increasing stress for wetland plant metrics in all VT wetlands and by wetland type. *Continued on the following page.*

Metric	ALL TYPES (StrsN = 42)		Beaver_Other (StrsN = 26)		Fen (StrsN = 2)		Floodplain (StrsN = 11)		Swamp_Seep (StrsN = 3)		
	DE	Trend	DE	Trend	DE	Trend	DE	Trend	DE	Trend	Comment
TotalRichness	NR		38.5	Decr	100	Incr	36.4	Decr	NR		Mixed and weak signal
nt_Native	28.6	Decr	46.2	Decr	100	Incr	NR		66.7	Decr	Mixed and weak signal
nt_NativeMonocot	NR		46.2	Decr	100	Incr	NR		NR		Mixed and weak signal
nt_Senstv710	88.1	Decr	50	Decr	NR		36.4	Decr	66.7	Decr	**Decreaser**
nt_Toler04	NR		34.6	Decr	100	Incr	NR		NR		Mixed and weak signal
nt_WetOblig35	NR		61.5	Decr	100	Incr	NR		NR		Mixed and weak signal
nt_WetUpl-5-3	NR		NR		100	Incr	45.5	Incr	66.7	Decr	Mixed and weak signal
pt_Native	92.9	Decr	92.3	Decr	NR		54.5	Decr	100	Decr	**Decreaser**
pt_NatvMonocot	33.3	Incr	38.5	Decr	NR		NR		NR		Mixed and weak signal
pt_Senstv710	90.5	Decr	65.4	Decr	100	Decr	54.5	Decr	66.7	Decr	**Strong Decreaser**
pt_Toler04	92.9	Incr	69.2	Incr	100	Incr	45.5	Incr	66.7	Incr	**Strong Increaser**
pt_WetOblig35	NR		50	Decr	100	Decr	NR		66.7	Incr	Mixed and weak signal
pt_WetUpl-5-3	NR		NR		100	Incr	NR		100	Decr	Mixed and weak signal
SumOfTotalCover	45.2	Decr	NR		NR		45.5	Decr	100	Decr	**Decreaser**
pc_Native	90.5	Decr	88.5	Decr	NR		90.9	Decr	100	Decr	**Decreaser**
pc_NatvMonocot	54.8	Incr	50	Incr	NR		45.5	Incr	66.7	Incr	**Increaser**
pc_Senstv710	78.6	Decr	76.9	Decr	100	Decr	54.5	Decr	66.7	Decr	**Strong Decreaser**
pc_Toler04	64.3	Incr	69.2	Incr	100	Incr	45.5	Incr	66.7	Decr	Mixed - mostly Increaser
pc_WetOblig35	38.1	Incr	34.6	Decr	100	Decr	36.4	Decr	66.7	Incr	Mixed and weak signal
pc_WetUpl-5-3	NR		NR		100	Incr	NR		66.7	Decr	Mixed and weak signal
RelImpNative	92.9	Decr	92.3	Decr	NR		90.9	Decr	100	Decr	**Decreaser**
RelImpSenstv710	90.5	Decr	84.6	Decr	100	Decr	54.5	Decr	66.7	Decr	**Strong Decreaser**
wac_tolerance	71.4	Decr	76.9	Decr	100	Decr	72.7	Decr	NR		**Decreaser**

Metric	ALL TYPES (StrsN = 42)		Beaver_Other (StrsN = 26)		Fen (StrsN = 2)		Floodplain (StrsN = 11)		Swamp_Seep (StrsN = 3)		
	DE	Trend	DE	Trend	DE	Trend	DE	Trend	DE	Trend	Comment
Cover_Weighted_CoC	66.7	Decr	76.9	Decr	100	Decr	72.7	Decr	NR		**Decreaser**
wat_tolerance	97.6	Decr	84.6	Decr	100	Decr	54.5	Decr	100	Decr	**Strong Decreaser**
FQAI	85.7	Decr	76.9	Decr	NR		NR		100	Decr	**Decreaser**
FQI	85.7	Decr	76.9	Decr	NR		NR		100	Decr	**Decreaser**
FQI_weighted	64.3	Decr	50	Decr	100	Decr	45.5	Decr	100	Decr	**Strong Decreaser**
VMMI	59.5	Decr	46.2	Decr	100	Decr	63.6	Decr	NR		**Decreaser**
Hprime	47.6	Decr	65.4	Decr	100	Incr	NR		66.7	Decr	Mixed and weak signal

Possible Assessment Considerations

Two metrics discriminate well separately (Figure 10), represent different aspects of the plant community (native status and tolerance), and could be combined in a new multimetric index. The Relative Importance of Native species (RelImpNative) represents both richness and abundance of native species. It is sensitive to the disturbance gradient except in the Fens, which are only evaluated using two stressed sites. It is also unassessed in the Spruce Swamps, which do not have any stressed examples. The weighted average of species CoC values metric (wat_tolerance [weighted average by taxa]) is sensitive in all wetland types, though the DE is only moderately high in the Floodplains.

When these two metrics are converted to a common scale and averaged together as a preliminary VT DEC Index, they outperform all individual metrics or indices when considered in all wetland types (Table 7). This index cannot be test in the Spruce Swamp wetland type.

Table 7. Metric and new VT DEC index discrimination efficiency over all sites and by wetland type. "NR" = not responsive.

Metric	ALL TYPES DE	Beaver_Other DE	Fen DE	Floodplain DE	Swamp_Seep DE
RelImpNative	92.9	92.3	NR	90.9	100
wat_tolerance	97.6	84.6	100	54.5	100
VT DEC Index	95.2	92.3	100	81.8	100

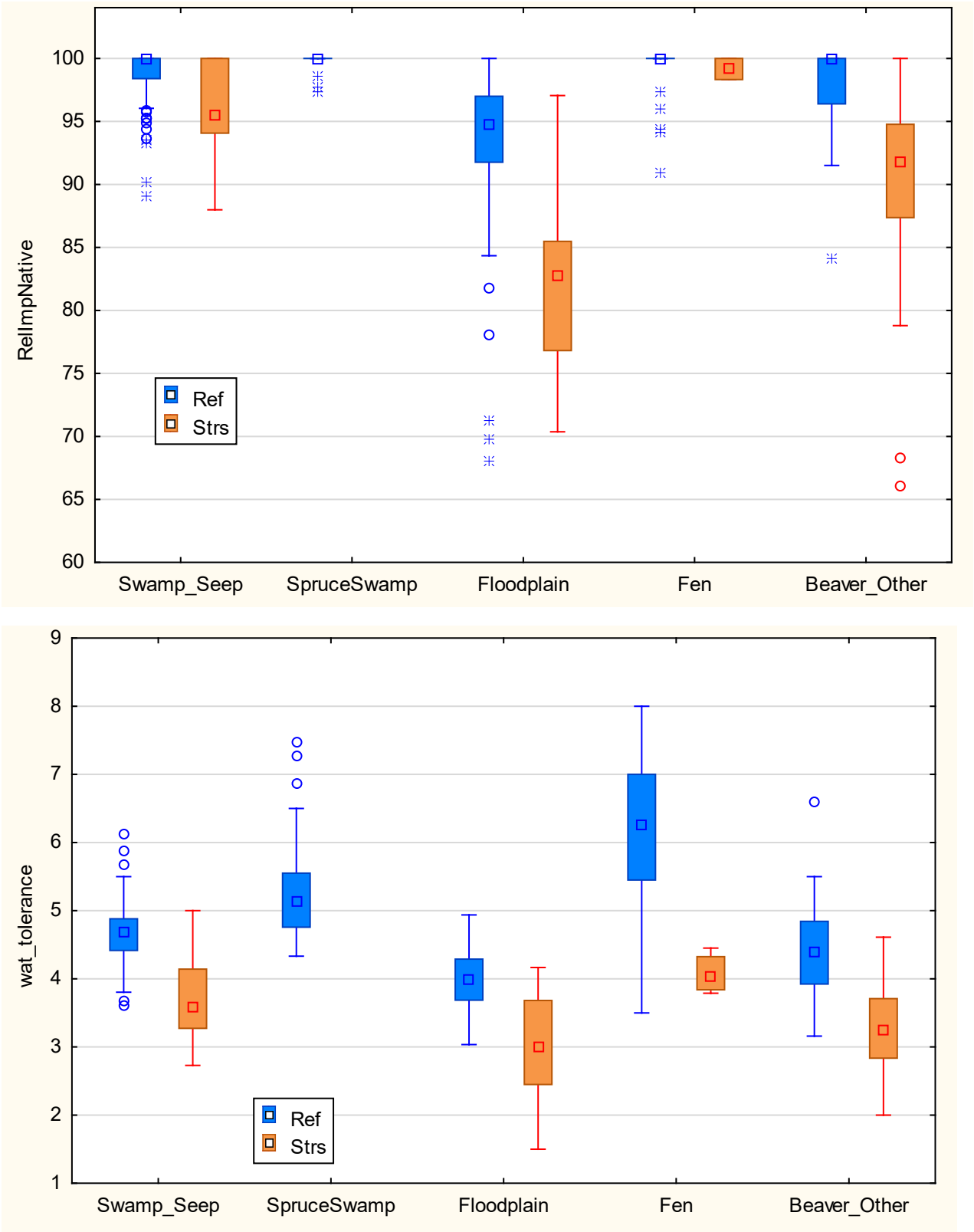


Figure 10. Index metric distributions in disturbance categories and site classes.

Index application

Scoring

Metrics are scored based on the following formulae:

Table 8. Metric scoring formulae for the proposed two-metric wetland index.

Metric	Metric Scoring Formula
RelImpNative	100*(RelImpNative -89.4)/(100-89.4)
wat_tolerance	100*(wat_tolerance -3.3)/(7.1-3.3)

For all calculations, scores that exceed 100 or are less than 0 are re-set to 100 or 0 (respectively) before averaging in the index. The index is calculated by averaging the metric scores.

Index Distributions

The index discriminates in all wetland types in which there are stressed sites for evaluation. The reference index expectations vary by wetland type (Figure 11).

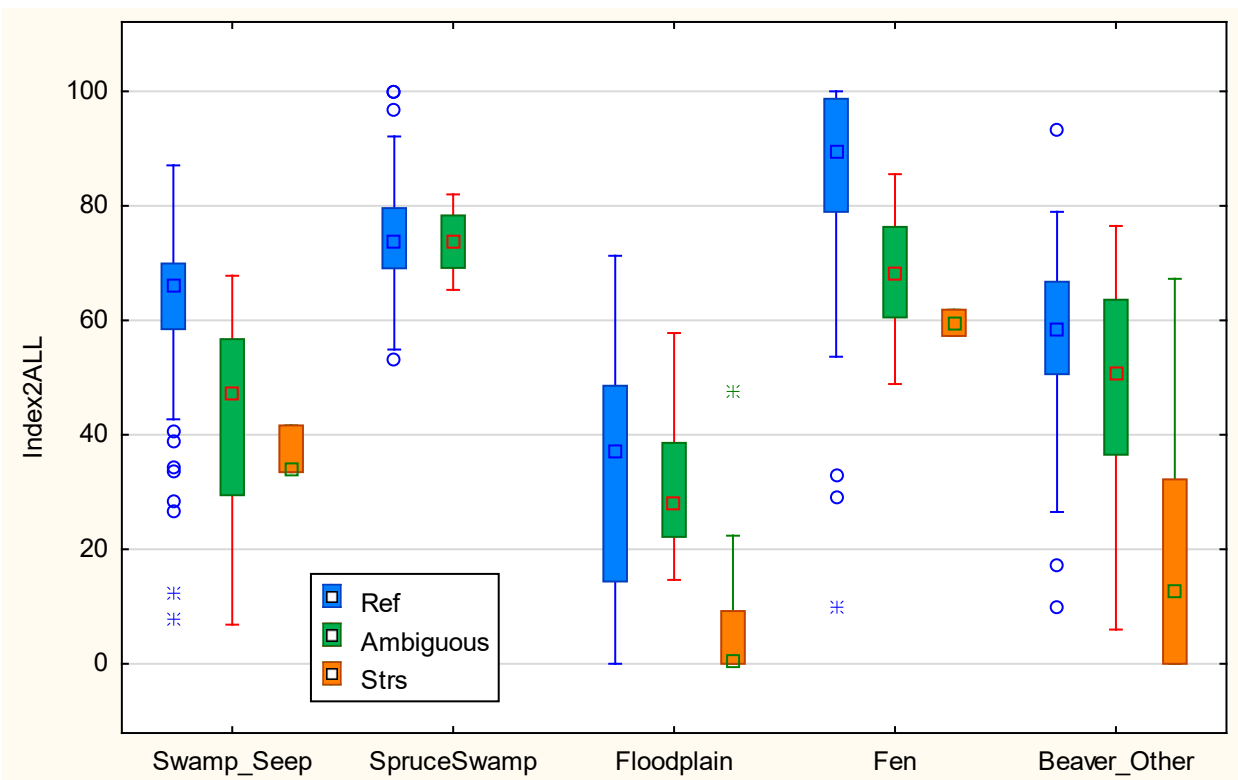


Figure 11. Index value distributions among site classes and disturbance categories for the proposed two-metric wetland index.

Assessment Thresholds

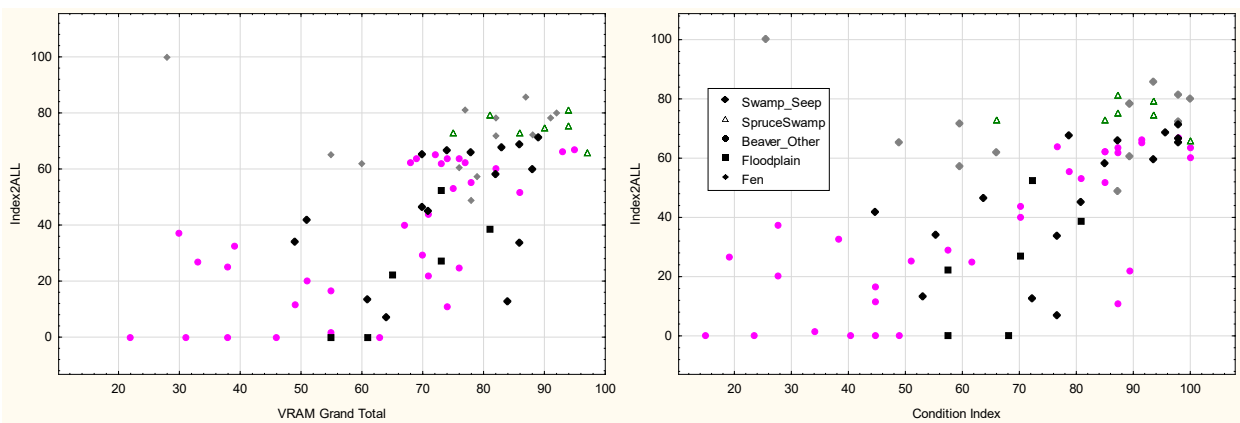
No assessment thresholds for designating impairment are recommended based on these analyses. However, if the VT DEC decides to assign narrative descriptions of wetland condition based on the site type and index, then the following (Table 9) might be appropriate. These are generally derived from the reference index distributions values at the reference median and lower quartile, and the upper quartile of stressed index scores. Results of metrics and the index for each wetland sample are displayed in Appendix E.

Table 9. Possible ranges of index values corresponding to narrative conditions for each wetland class.

Narrative Condition	Swamp_Seep	SpruceSwamp	Floodplain	Fen	Beaver_Other
Excellent	> 65	> 75	> 35	> 90	> 60
Good	60 - 65	70 - 75	15 - 35	80 - 90	50 - 60
Fair	40 - 60	< 70	10 - 15	60 - 80	30 - 50
Poor	< 40	NA	<10	<60	<30

Relation to Stressors

The two-metric wetland index was related to some stressors, including the VRAM (total score, the condition index of the VRAM, conductivity, and chloride (Figure 12). Additional graphics showing relationships between the index and site conditions are shown in Appendix F.



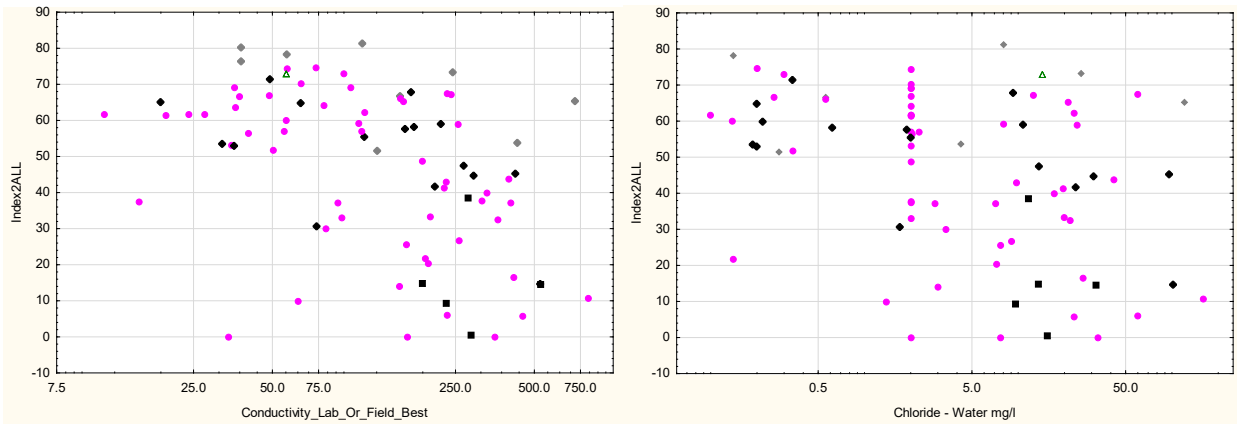


Figure 12. The proposed two-metric wetland index in relation to stressor variables, including the VRAM (total score, the condition index of the VRAM, conductivity, and chloride.

Data Gaps

The wetland monitoring emphasis in Vermont has been on specific targeted wetlands and on wetlands with relatively little disturbance. This is evident in the a priori disturbance categories assigned to sites for the current analysis. Most sites fell in to the "reference" or relatively undisturbed category. The emphasis serves the purposes of the monitoring programs, and allows recognition of wetland types in relatively natural settings. However, is not ideal for detecting wetland metric sensitivity to stressors because there are few stressed sites to show consistent changes in metric values across the disturbance gradient.

To continue evaluating metric responsiveness and to validate the index in future analyses, the gaps in the disturbance gradient should be filled with additional samples or sites. Specifically, wetland sites with substantial disturbance should be monitored. As shown in Table 10, there are very few stressed sites in three site classes: fens, spruce swamps, and swamp/seeps.

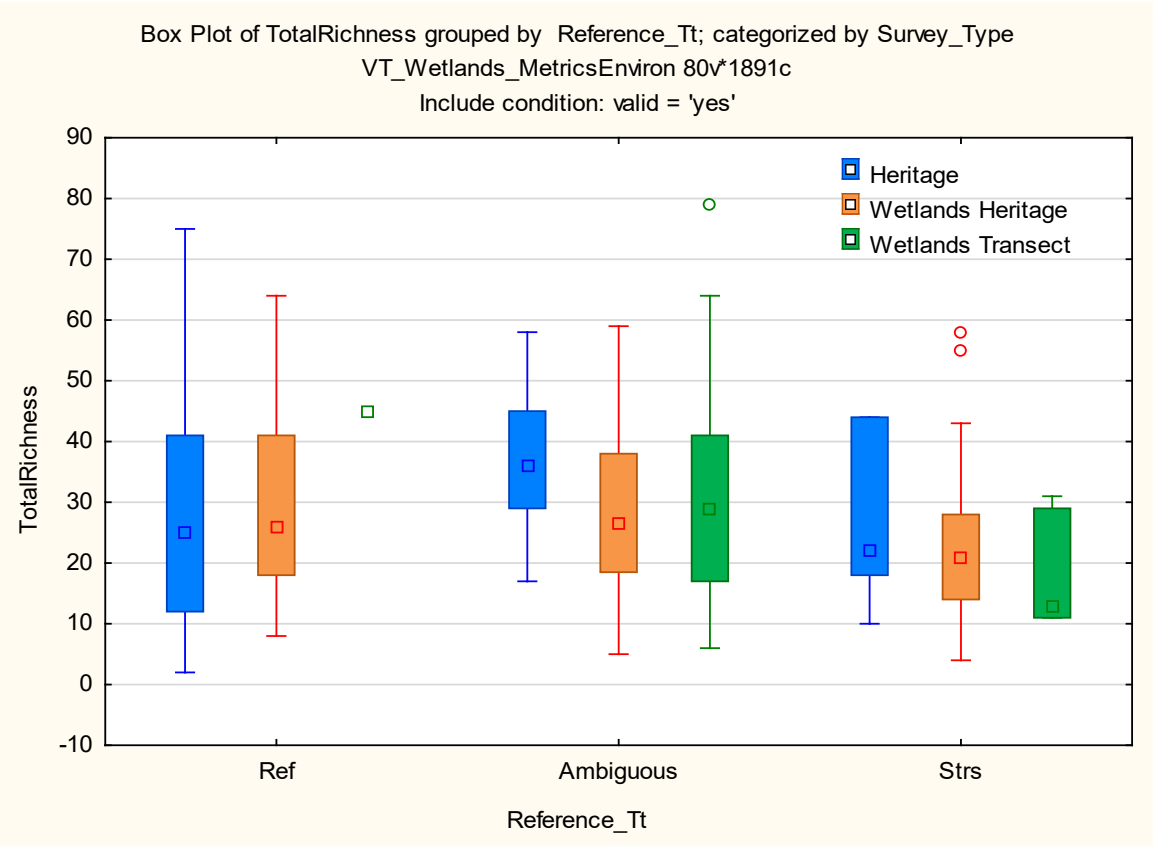
Table 10. Tally of samples by site class and disturbance category.

Site Class	Ref	Strs
Beaver_Other	29	26
Fen	166	2
Floodplain	41	11
SpruceSwamp	45	0
Swamp_Seep	222	3
All sites	503	42

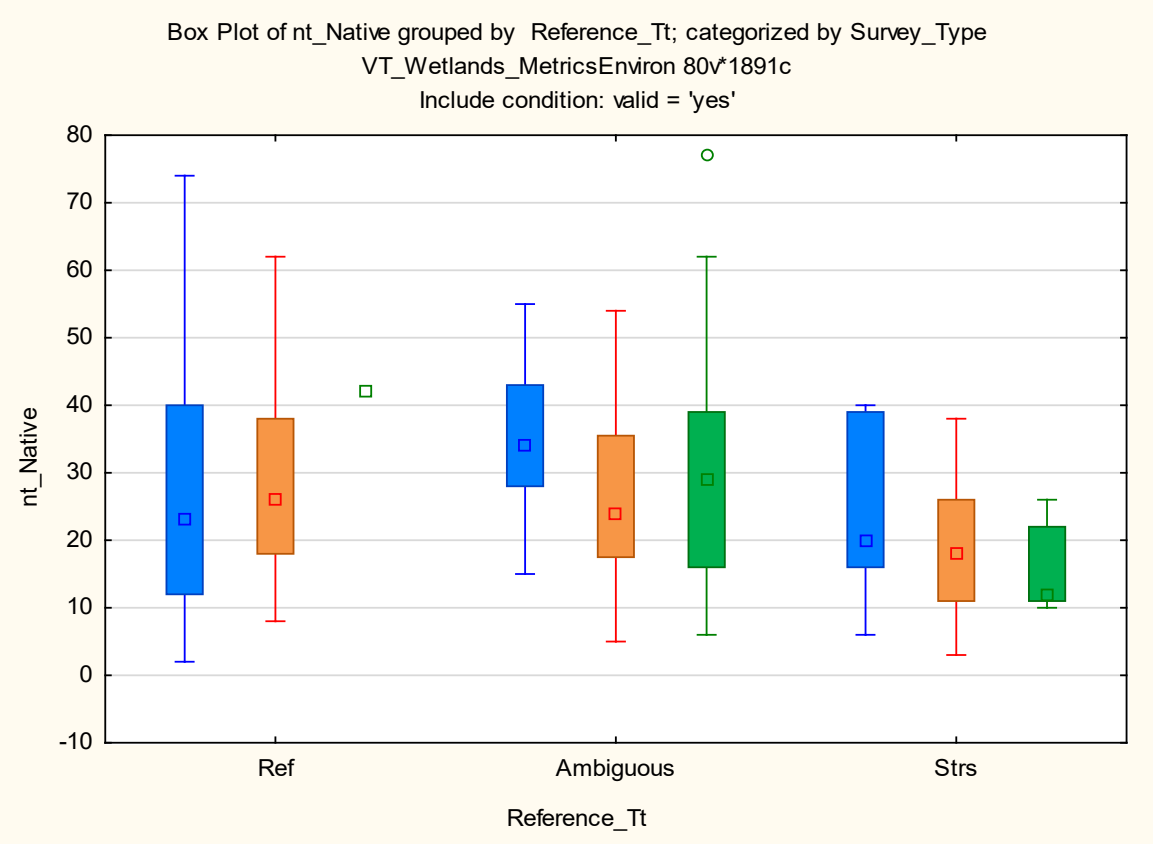
Several wetland monitoring programs do not use methods or recording standards comparable to the Heritage, Wetlands Heritage, or Wetlands Transect programs. If feasible to implement consistent sampling among programs, it would allow for data pooling in future analyses.

VT DEC has experimented with wetland plant trait assignments related to tolerances to stressors and to specific wetland conditions. The traits used for metric calculations in the current analyses were acceptable because they were traceable to precedents and publications. Confirmation or new assignment of traits would increase confidence in the existing metrics and would allow for calculation of metrics indicative of additional conditions.

Appendix A. Metric plots by disturbance category and survey type



Appendix A.


Box Plot of nt_Native grouped by Reference_Tt; categorized by Survey_Type
VT_Wetlands_MetricsEnviron 80v*1891c
Include condition: valid = 'yes'
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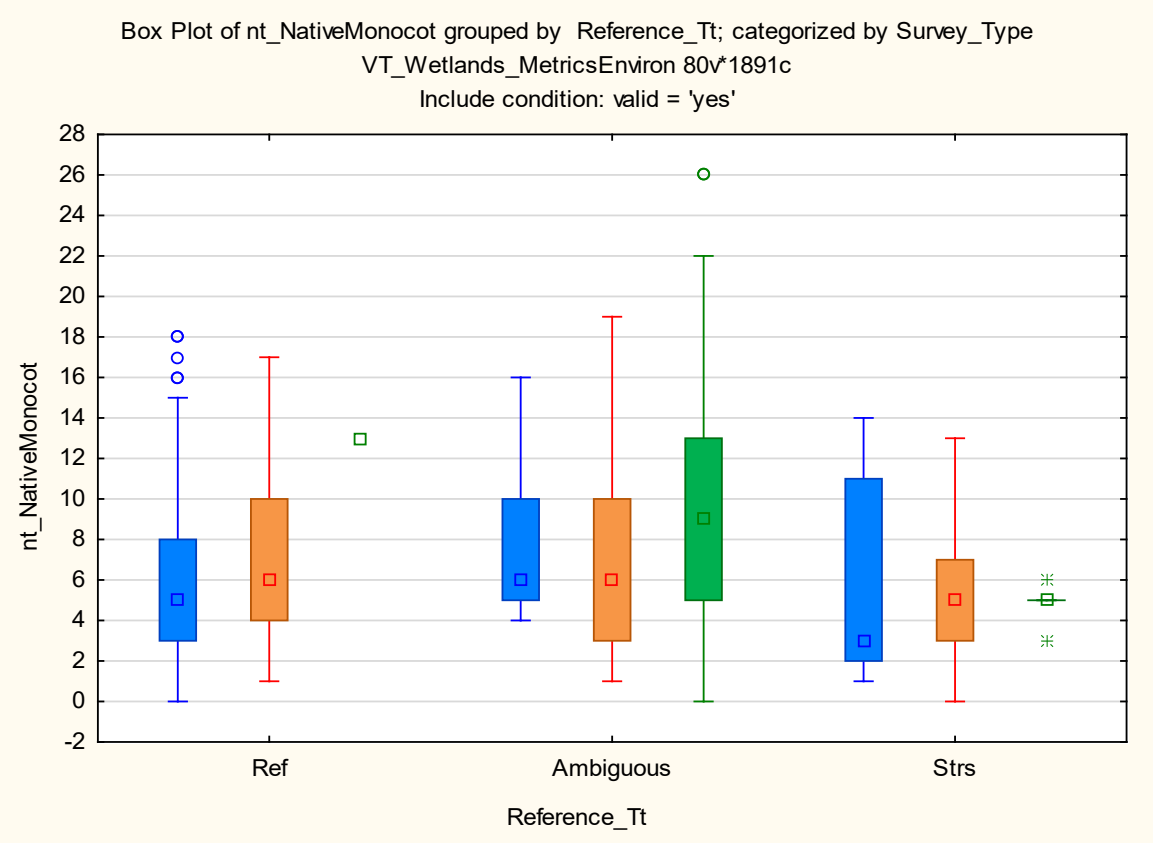
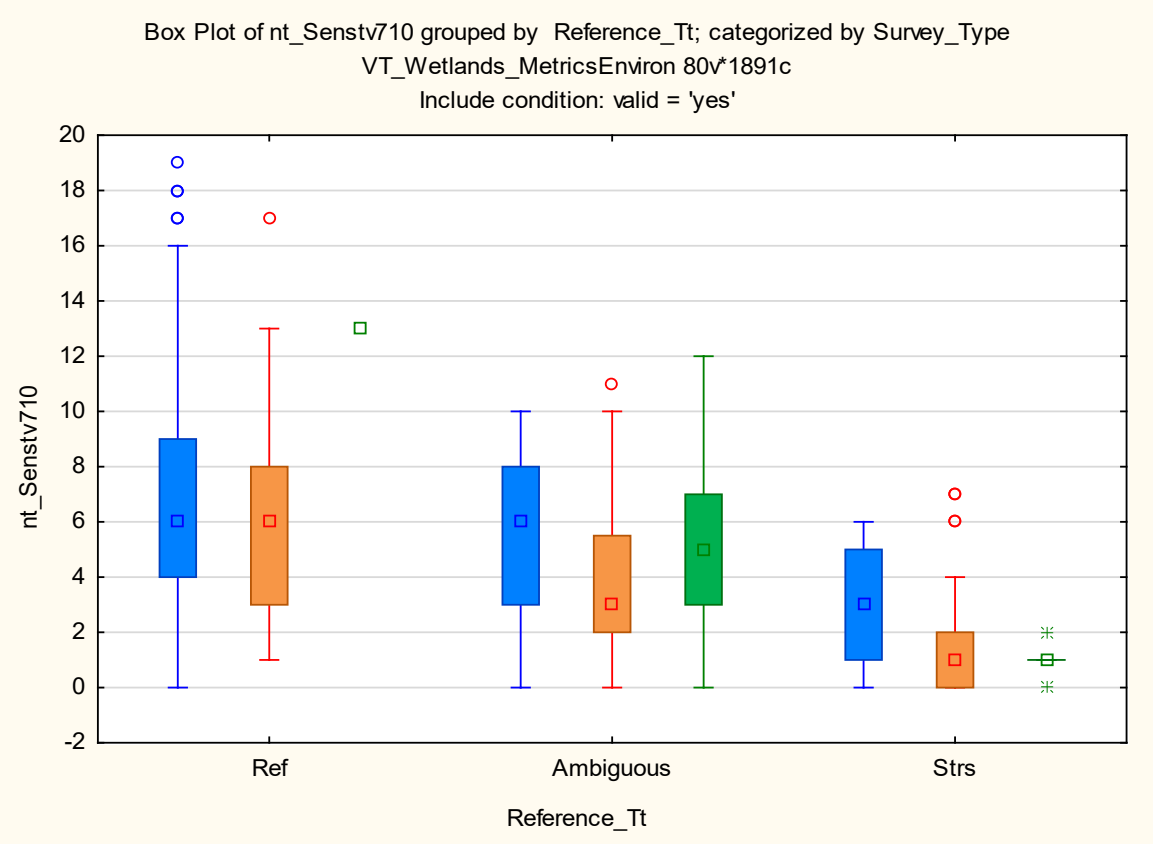
70
60
50
40
30
20
10
0
-10
Ref
Ambiguous
Strs
Reference_Tt


Box Plot of nt_NativeMonocot grouped by Reference_Tt; categorized by Survey_Type
VT_Wetlands_MetricsEnviron 80v*1891c
Include condition: valid = 'yes'
nt_NativeMonocot
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
-2
Ref
Ambiguous
Strs
Reference_Tt

Appendix A.


Box Plot of nt_Senstv710 grouped by Reference_Tt; categorized by Survey_Type
VT_Wetlands_MetricsEnviron 80v*1891c
Include condition: valid = 'yes'
nt_Senstv710
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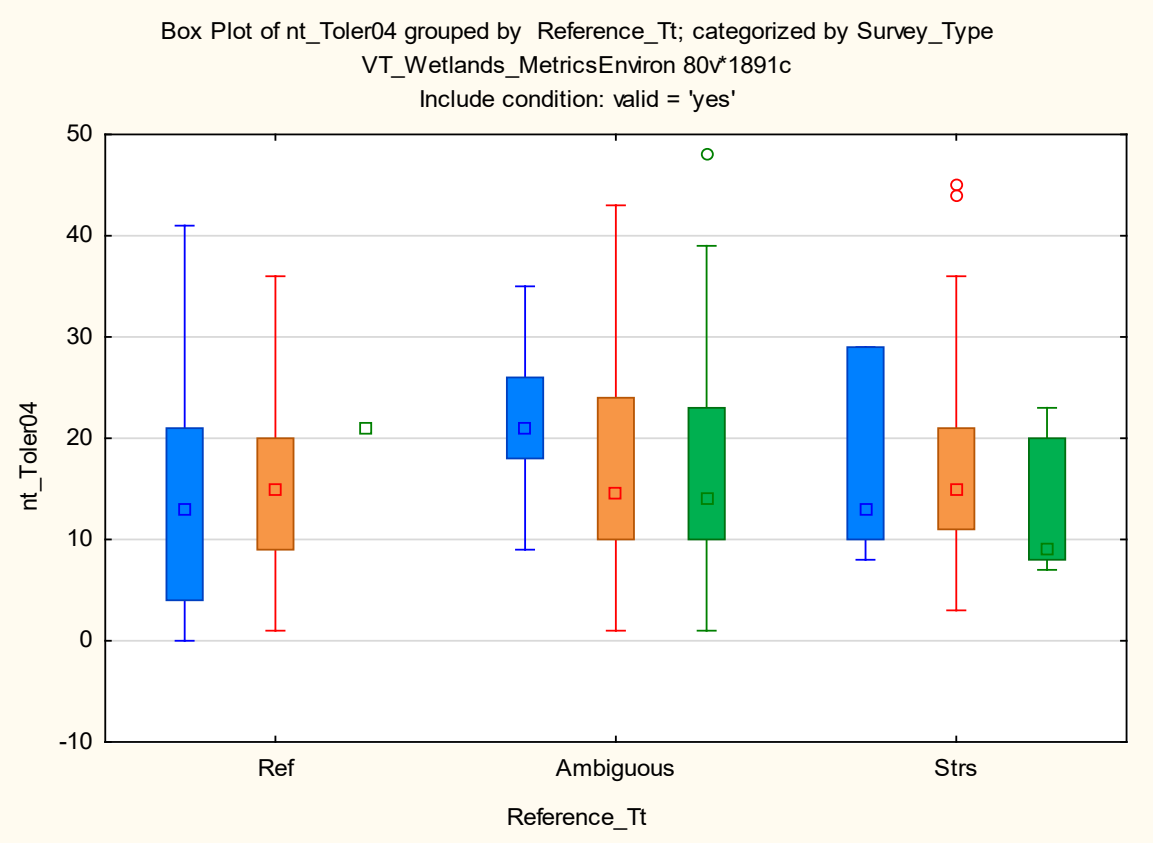
18
16
14
12
10
8
6
4
2
0
-2
Ref
Ambiguous
Strs
Reference_Tt


Box Plot of nt_Toler04 grouped by Reference_Tt; categorized by Survey_Type
VT_Wetlands_MetricsEnviron 80v*1891c
Include condition: valid = 'yes'
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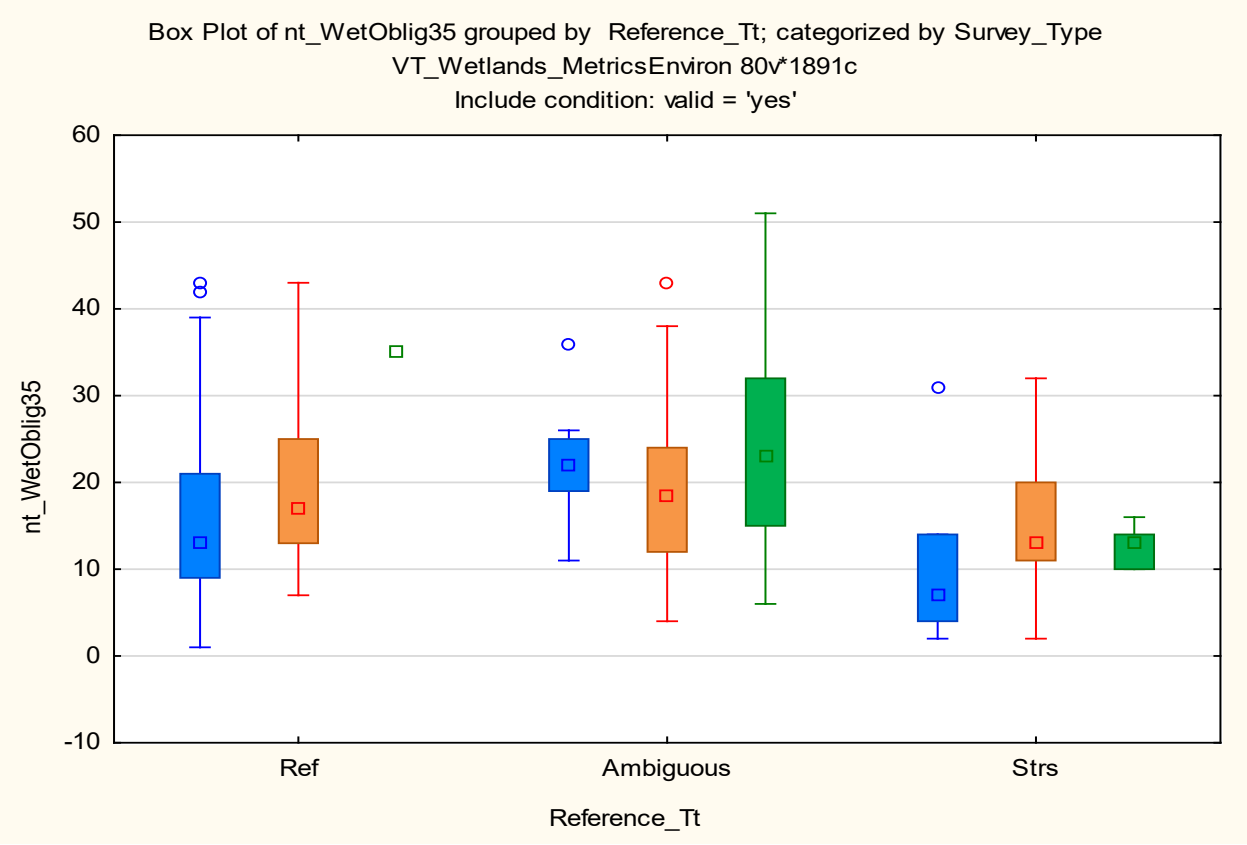
40
30
20
10
0
-10
Ref
Ambiguous
Strs
Reference_Tt

Appendix A.


Box Plot of nt_WetOblig35 grouped by Reference_Tt; categorized by Survey_Type
VT_Wetlands_MetricsEnviron 80v*1891c
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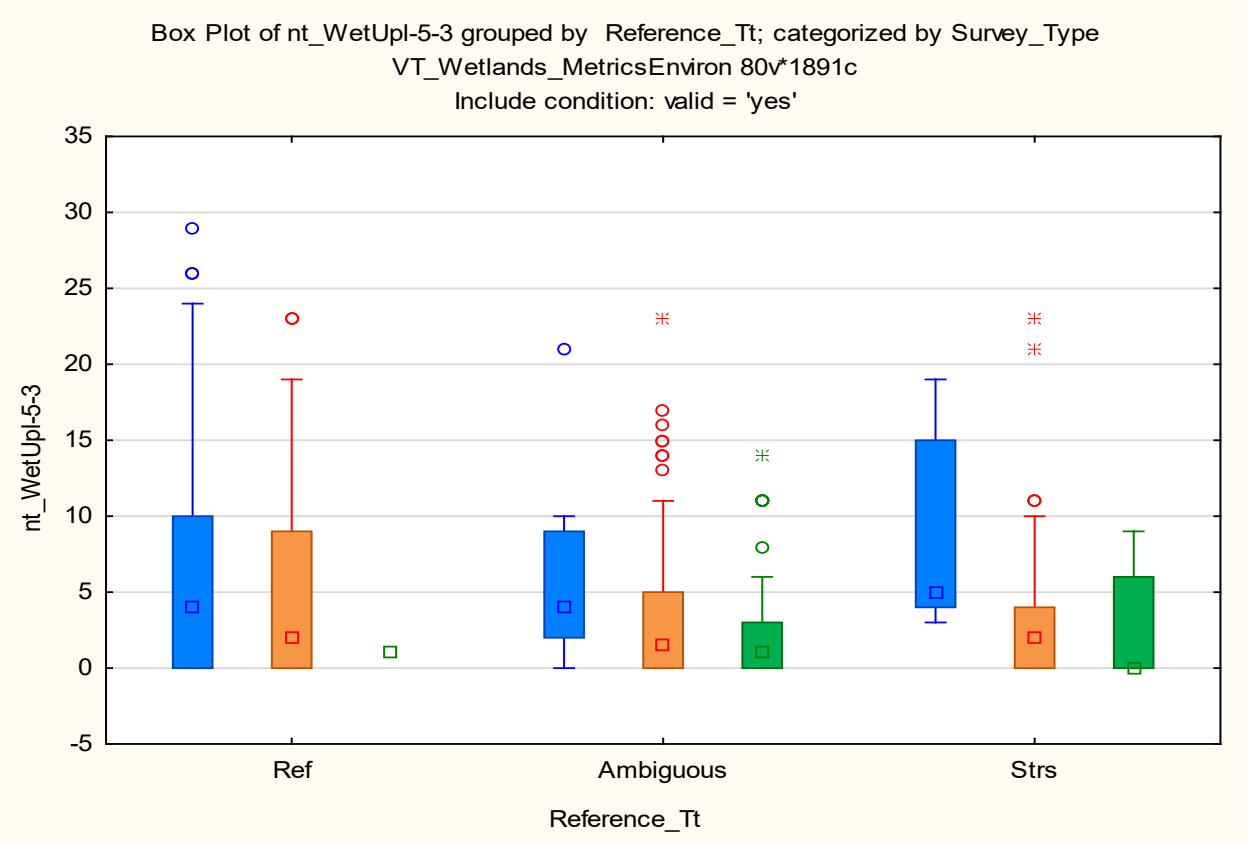
50
40
30
20
10
0
-10
Ref
Ambiguous
Strs
Reference_Tt


Box Plot of nt_WetUpl-5-3 grouped by Reference_Tt; categorized by Survey_Type
VT_Wetlands_MetricsEnviron 80v*1891c
Include condition: valid = 'yes'
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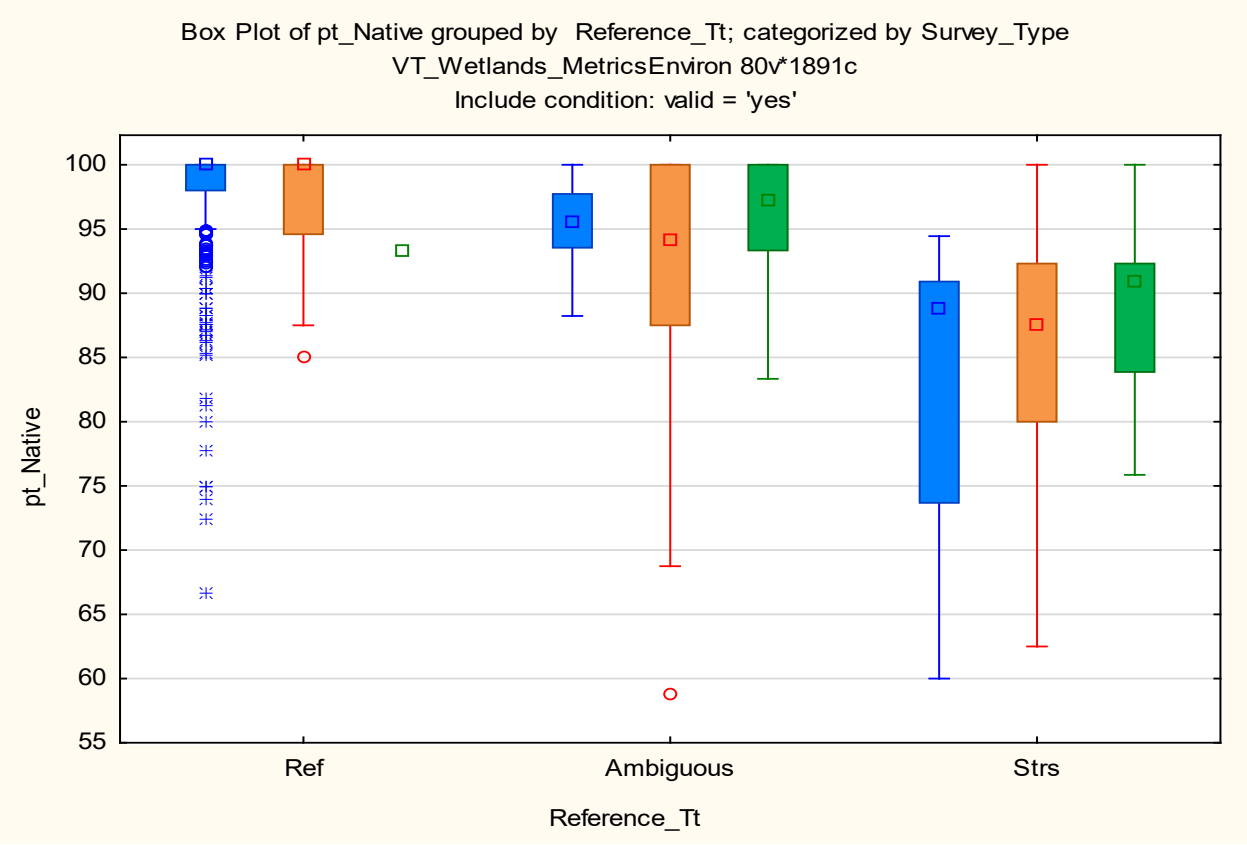
30
25
20
15
10
5
0
-5
Ref
Ambiguous
Strs
Reference_Tt

Appendix A.


Box Plot of pt_Native grouped by Reference_Tt; categorized by Survey_Type
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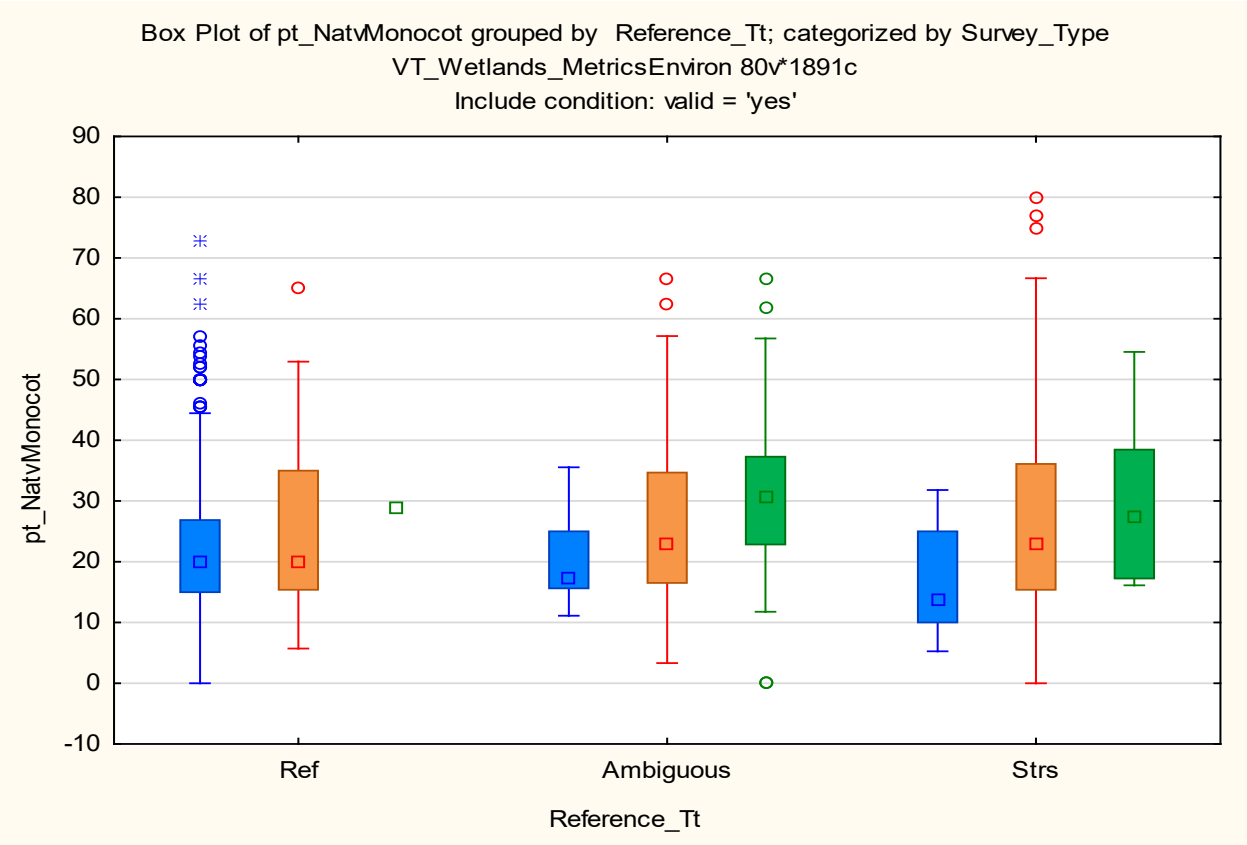
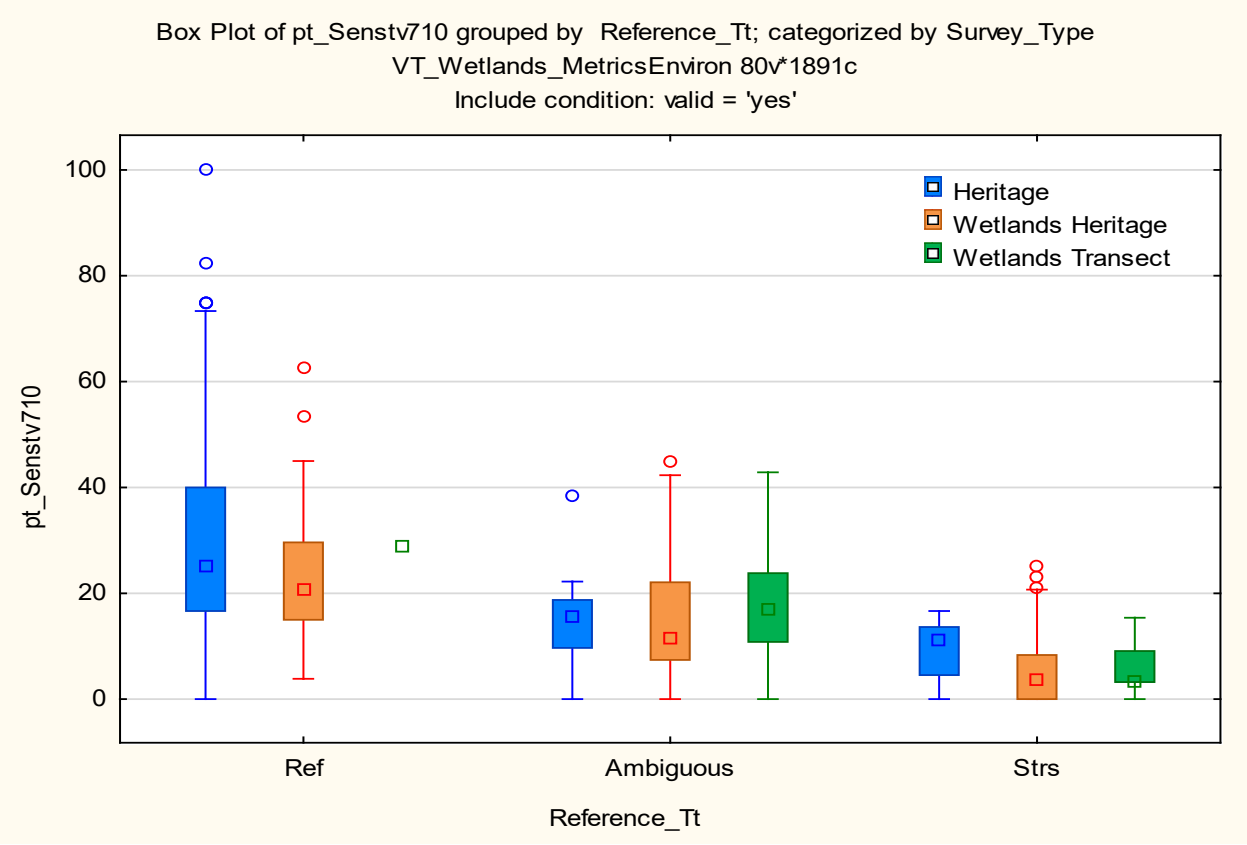
95
90
85
80
75
70
65
60
55
Ref
Ambiguous
Strs
Reference_Tt


Box Plot of pt_NatvMonocot grouped by Reference_Tt; categorized by Survey_Type
VT_Wetlands_MetricsEnviron 80v*1891c
Include condition: valid = 'yes'
pt_NatvMonocot
90
80
70
60
50
40
30
20
10
0
-10
Ref
Ambiguous
Strs
Reference_Tt

Appendix A.


Box Plot of pt_Senstv710 grouped by Reference_Tt; categorized by Survey_Type
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Include condition: valid = 'yes'
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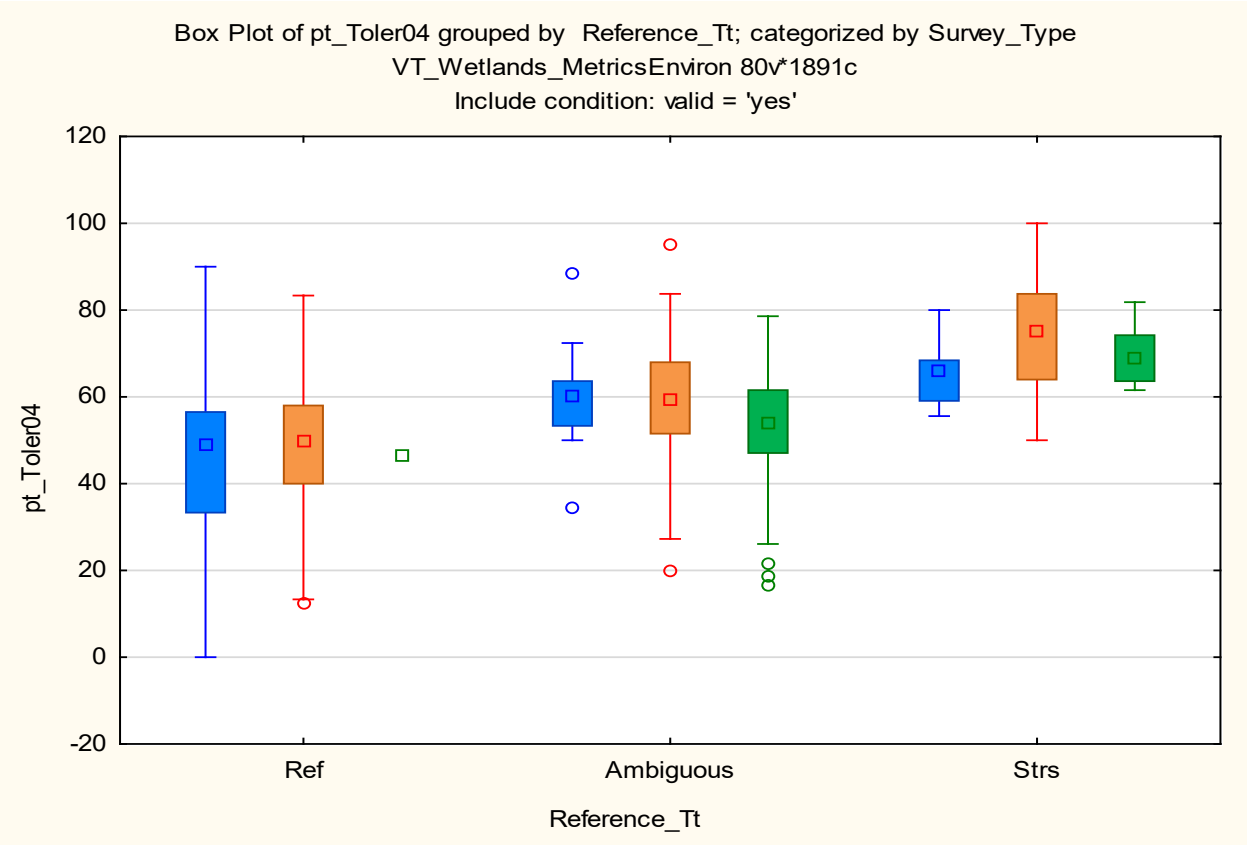
80
60
40
20
0
Heritage
Wetlands Heritage
Wetlands Transect
Ref
Ambiguous
Strs
Reference_Tt


Box Plot of pt_Toler04 grouped by Reference_Tt; categorized by Survey_Type
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Include condition: valid = 'yes'
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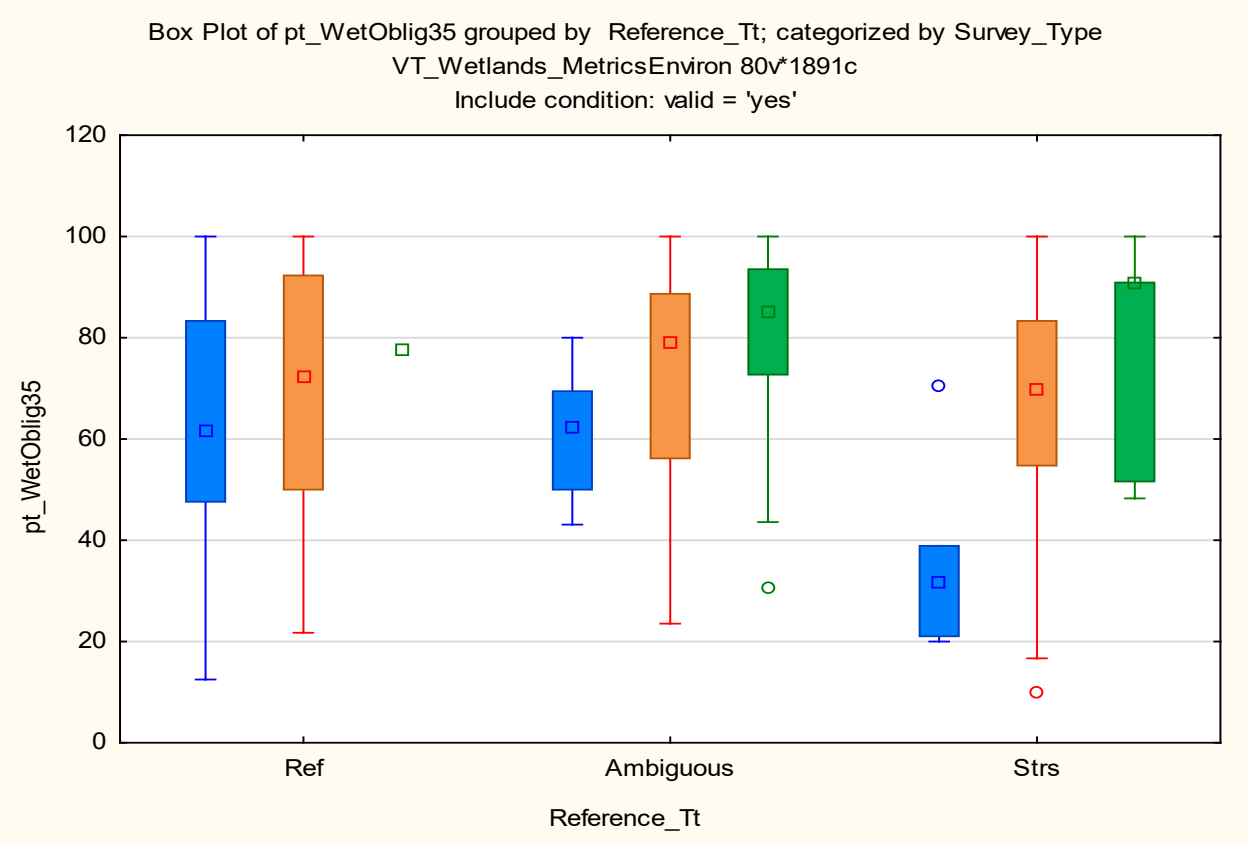
120
100
80
60
40
20
0
-20
Ref
Ambiguous
Strs
Reference_Tt

Appendix A.


Box Plot of pt_WetOblig35 grouped by Reference_Tt; categorized by Survey_Type
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pt_WetOblig35
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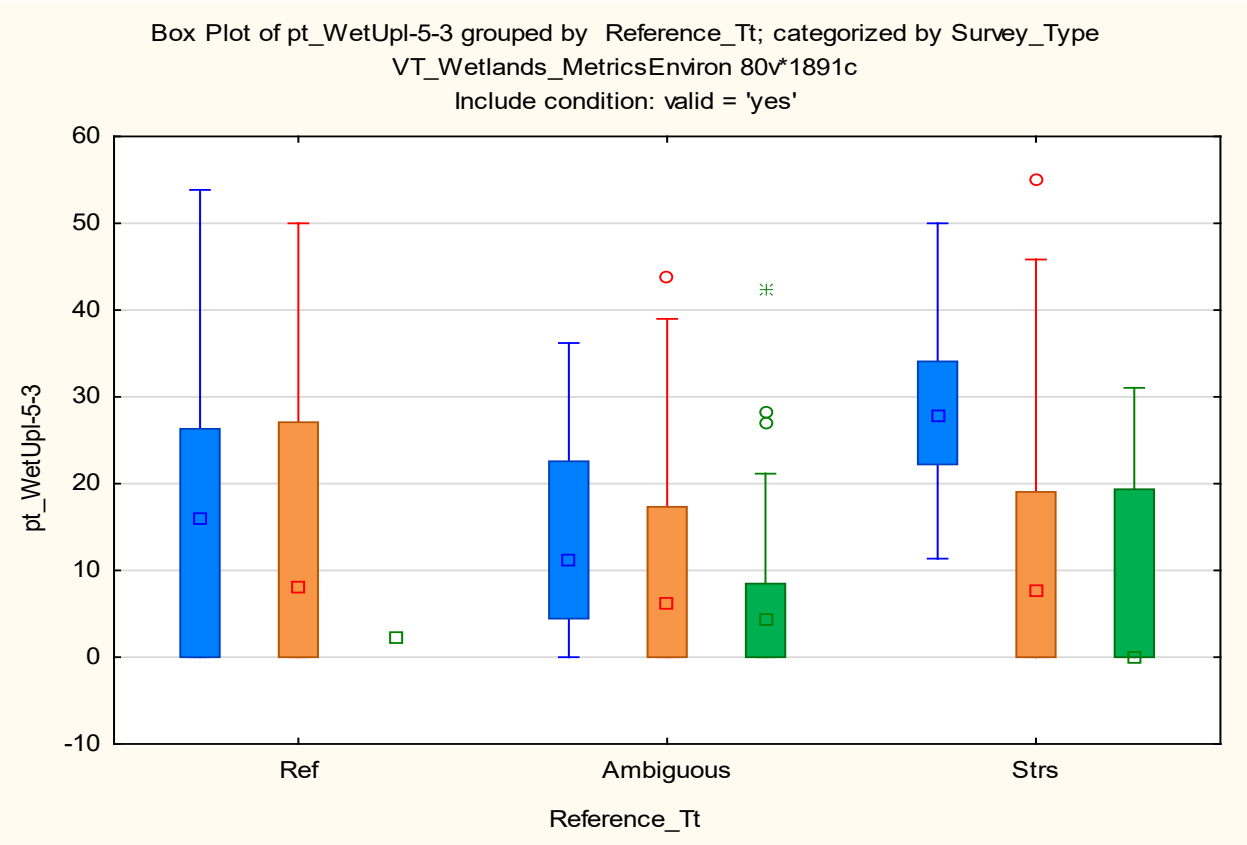
60
40
20
0
Ref
Ambiguous
Strs
Reference_Tt


Box Plot of pt_WetUpl-5-3 grouped by Reference_Tt; categorized by Survey_Type
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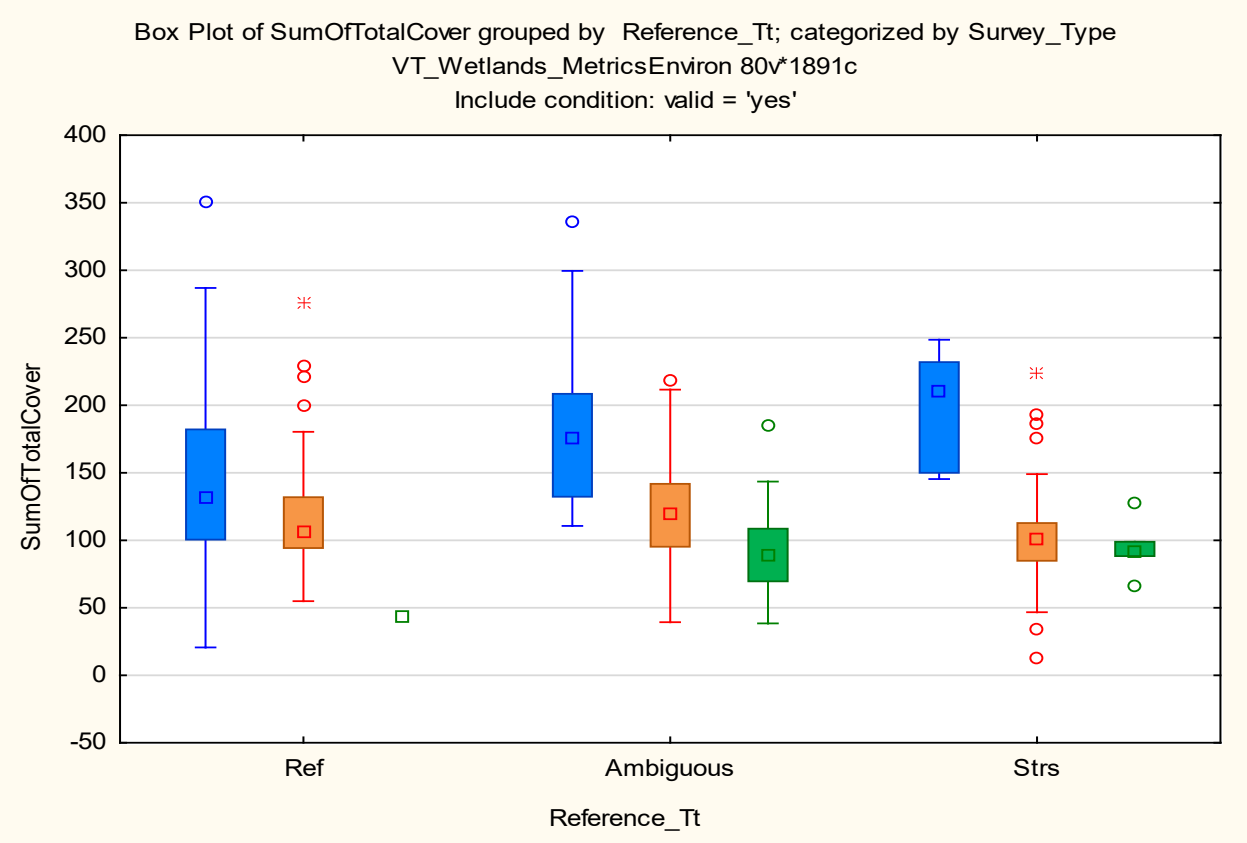
60
50
40
30
20
10
0
-10
Ref
Ambiguous
Strs
Reference_Tt

Appendix A.


Box Plot of SumOfTotalCover grouped by Reference_Tt; categorized by Survey_Type
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Include condition: valid = 'yes'
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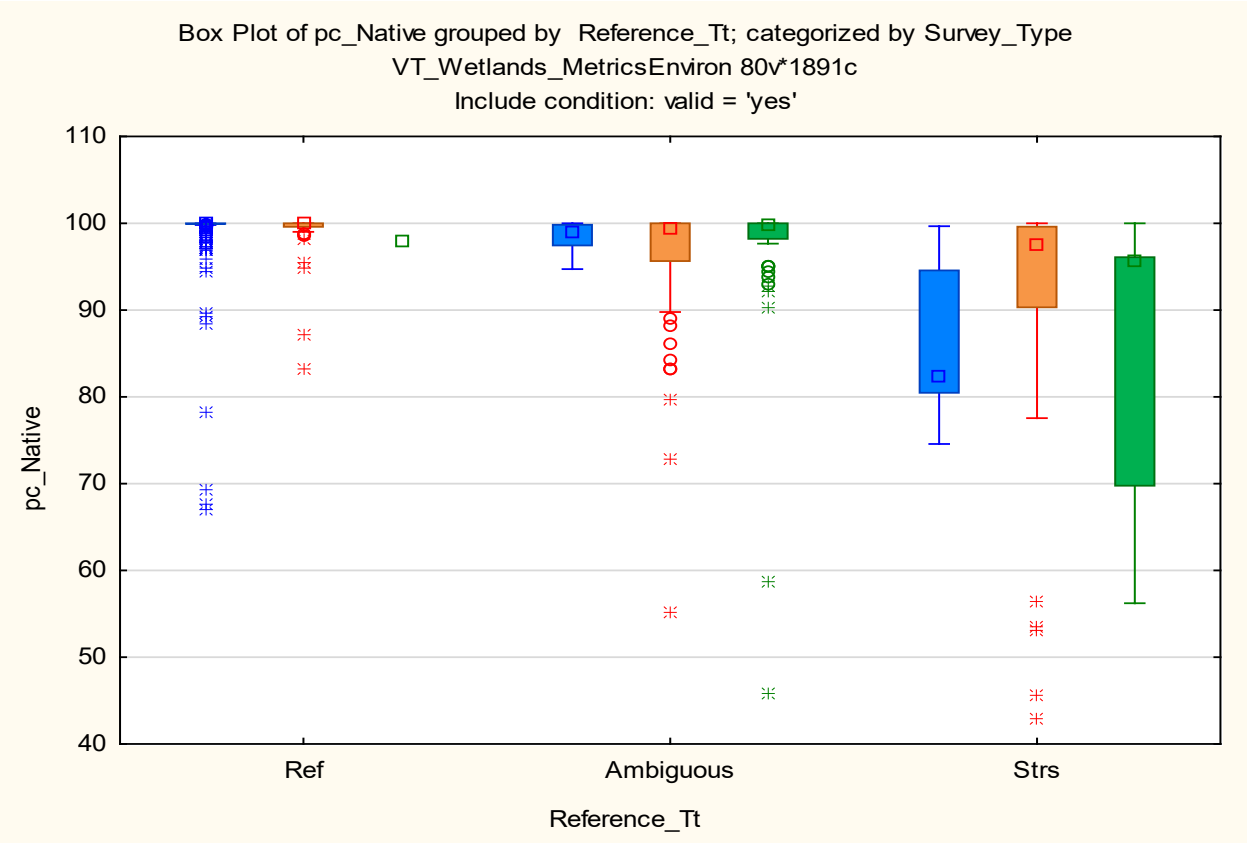
350
300
250
200
150
100
50
0
-50
Ref
Ambiguous
Strs
Reference_Tt


Box Plot of pc_Native grouped by Reference_Tt; categorized by Survey_Type
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pc_Native
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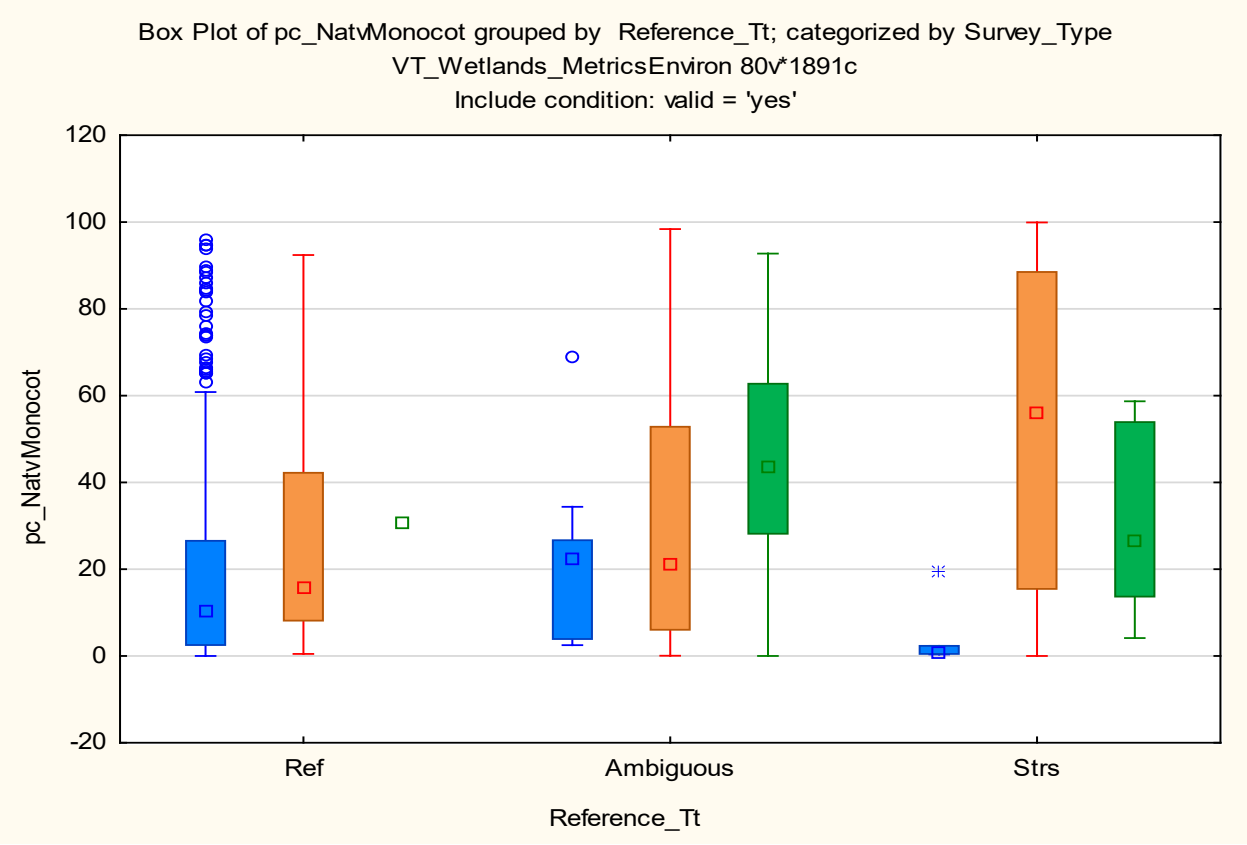
100
90
80
70
60
50
40
Ref
Ambiguous
Strs
Reference_Tt

Appendix A.


Box Plot of pc_NatvMonocot grouped by Reference_Tt; categorized by Survey_Type
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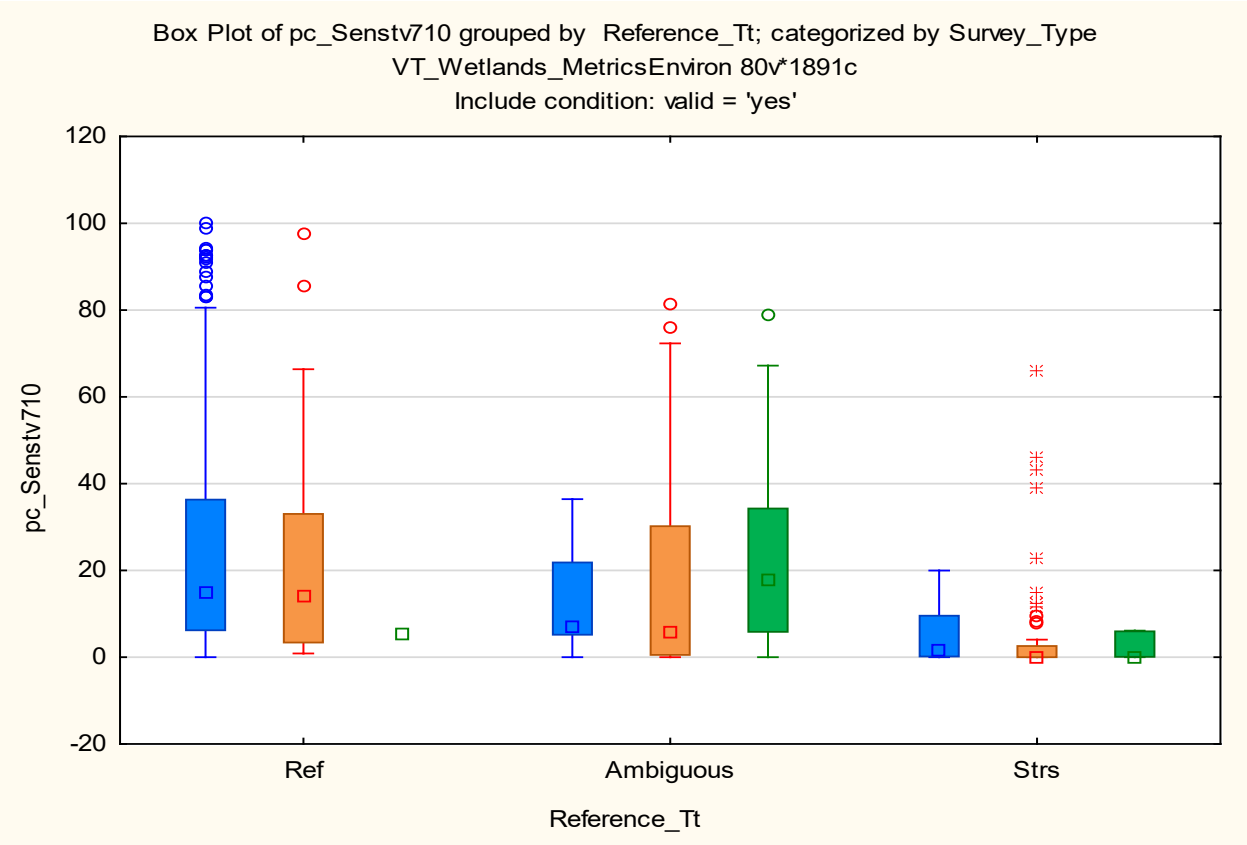
80
60
40
20
0
-20
Ref
Ambiguous
Strs
Reference_Tt


Box Plot of pc_Senstv710 grouped by Reference_Tt; categorized by Survey_Type
VT_Wetlands_MetricsEnviron 80v*1891c
Include condition: valid = 'yes'
pc_Senstv710
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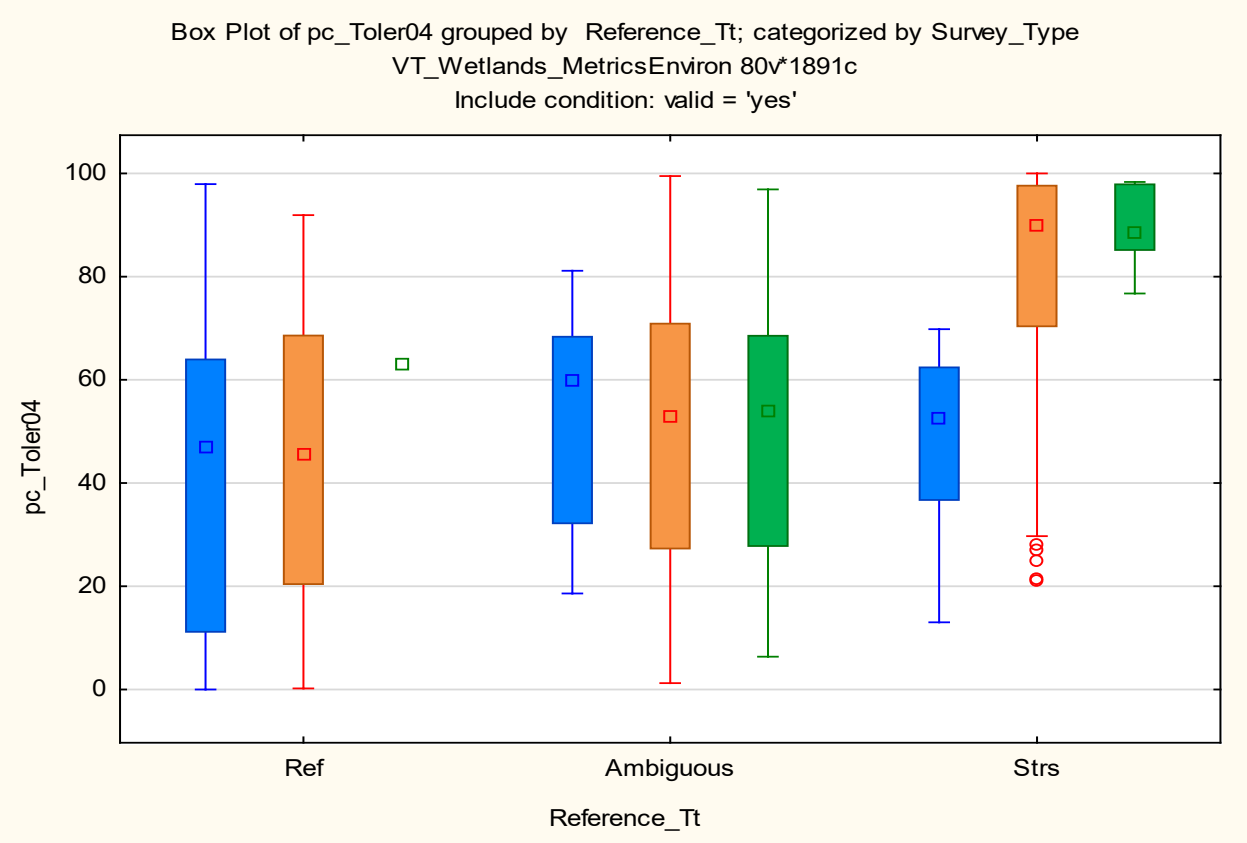
100
80
60
40
20
0
-20
Ref
Ambiguous
Strs
Reference_Tt

Appendix A.


Box Plot of pc_Toler04 grouped by Reference_Tt; categorized by Survey_Type
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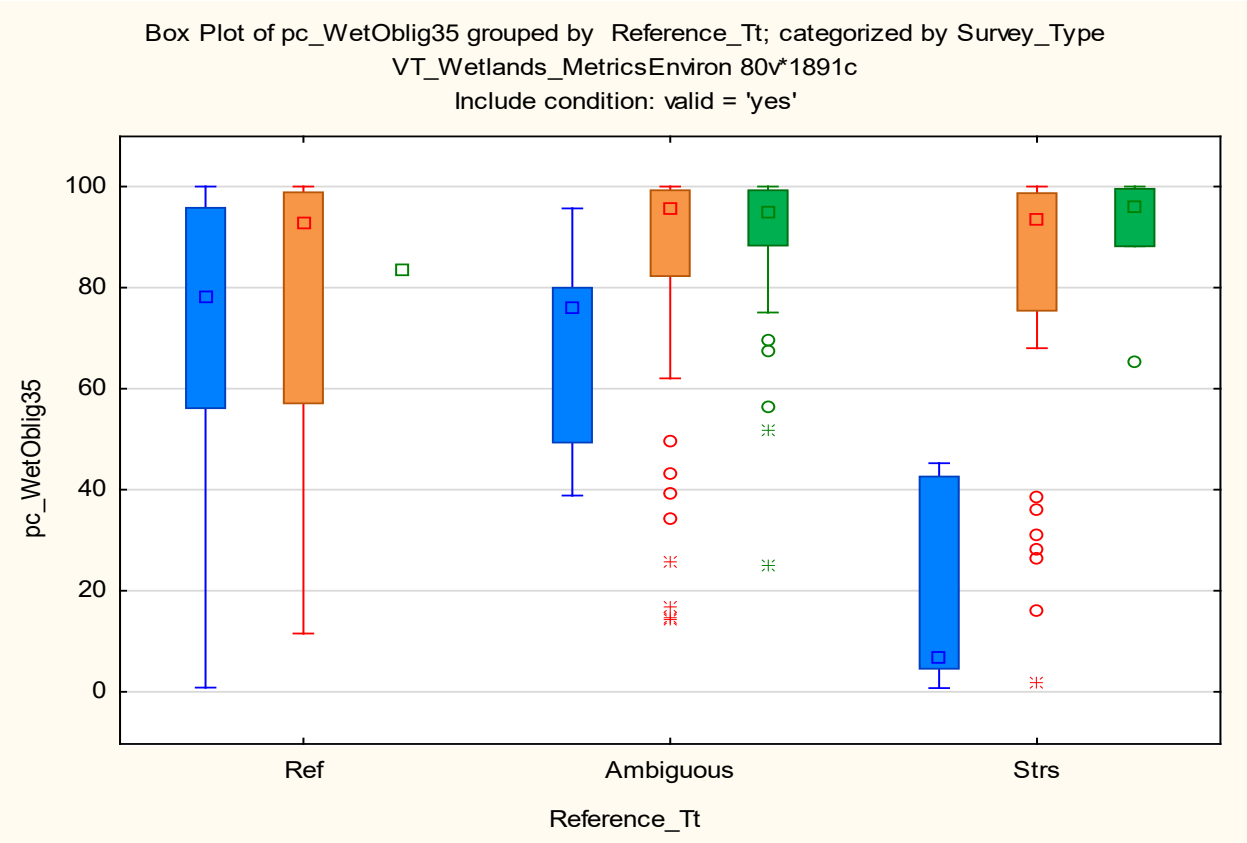
60
40
20
0
Ref
Ambiguous
Strs
Reference_Tt


Box Plot of pc_WetOblig35 grouped by Reference_Tt; categorized by Survey_Type
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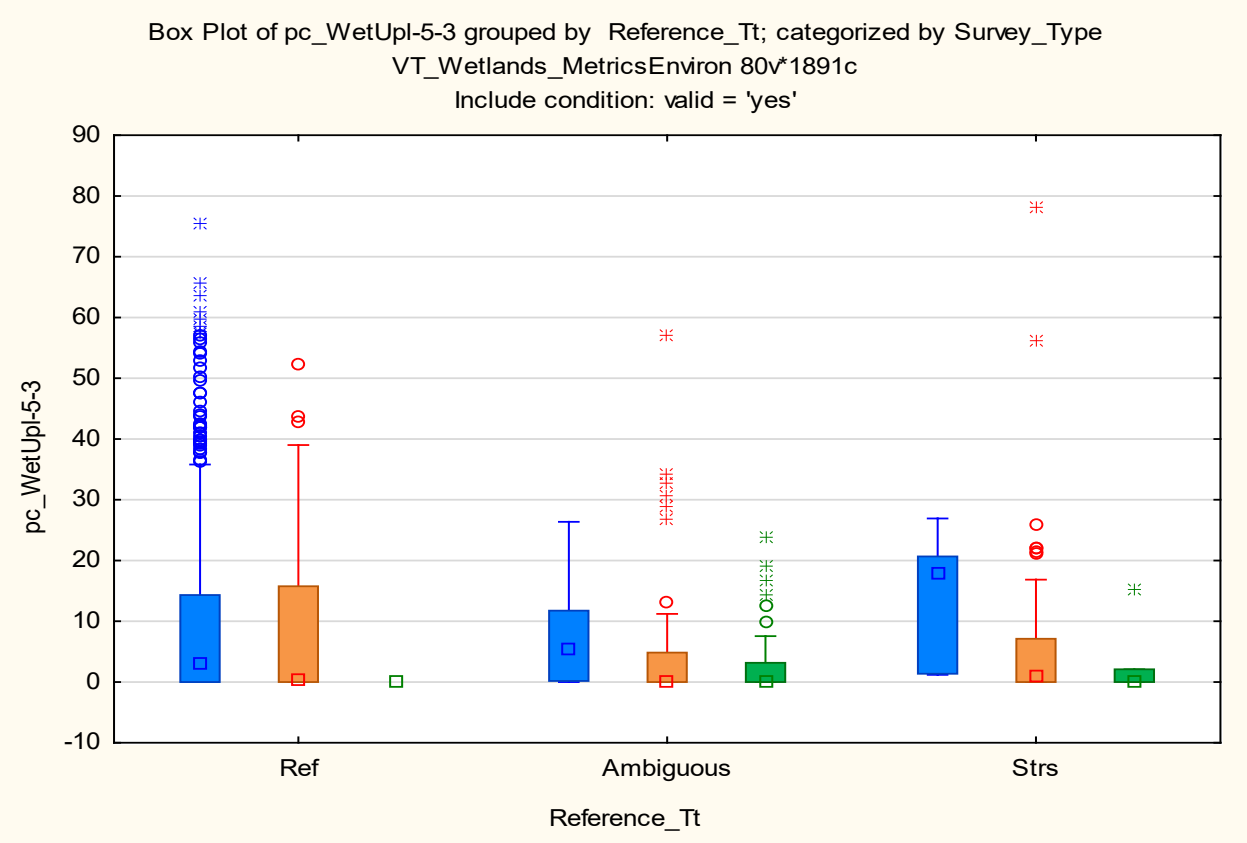
pc_WetOblig35
100
80
60
40
20
0
Ref
Ambiguous
Strs
Reference_Tt

Appendix A.


Box Plot of pc_WetUpl-5-3 grouped by Reference_Tt; categorized by Survey_Type
VT_Wetlands_MetricsEnviron 80v*1891c
Include condition: valid = 'yes'
pc_WetUpl-5-3
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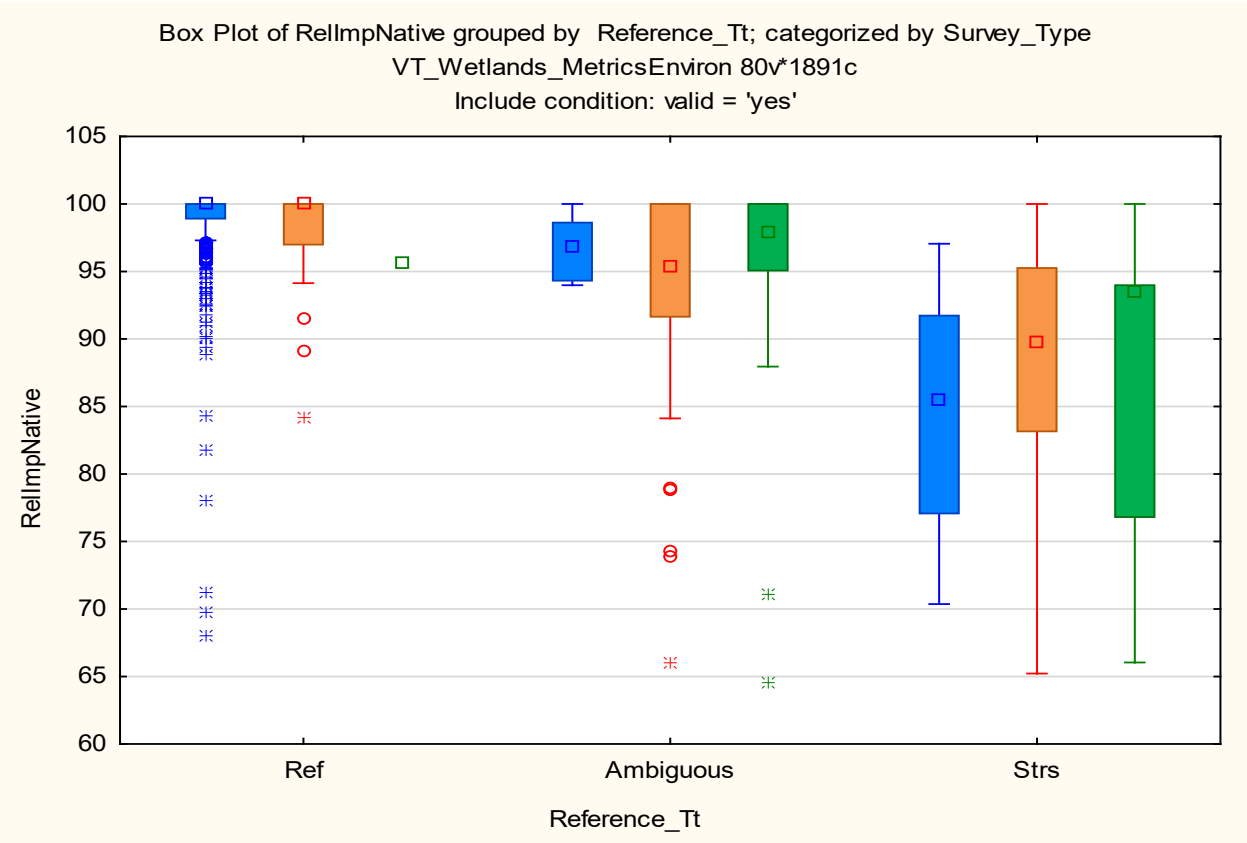
80
70
60
50
40
30
20
10
0
-10
Ref
Ambiguous
Strs
Reference_Tt


Box Plot of RelImpNative grouped by Reference_Tt; categorized by Survey_Type
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Include condition: valid = 'yes'
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100
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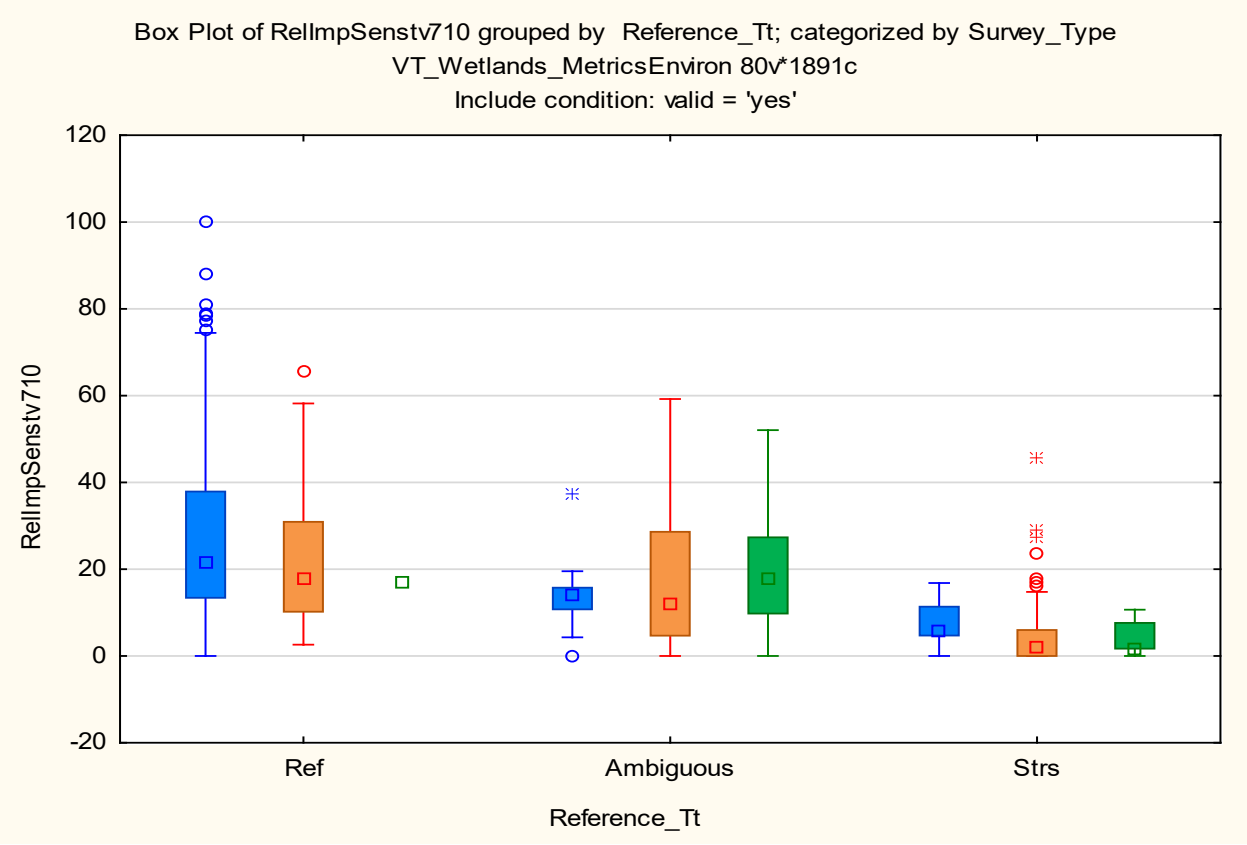
90
85
80
75
70
65
60
Ref
Ambiguous
Strs
Reference_Tt

Appendix A.


Box Plot of RelImpSenstv710 grouped by Reference_Tt; categorized by Survey_Type
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RelImpSenstv710
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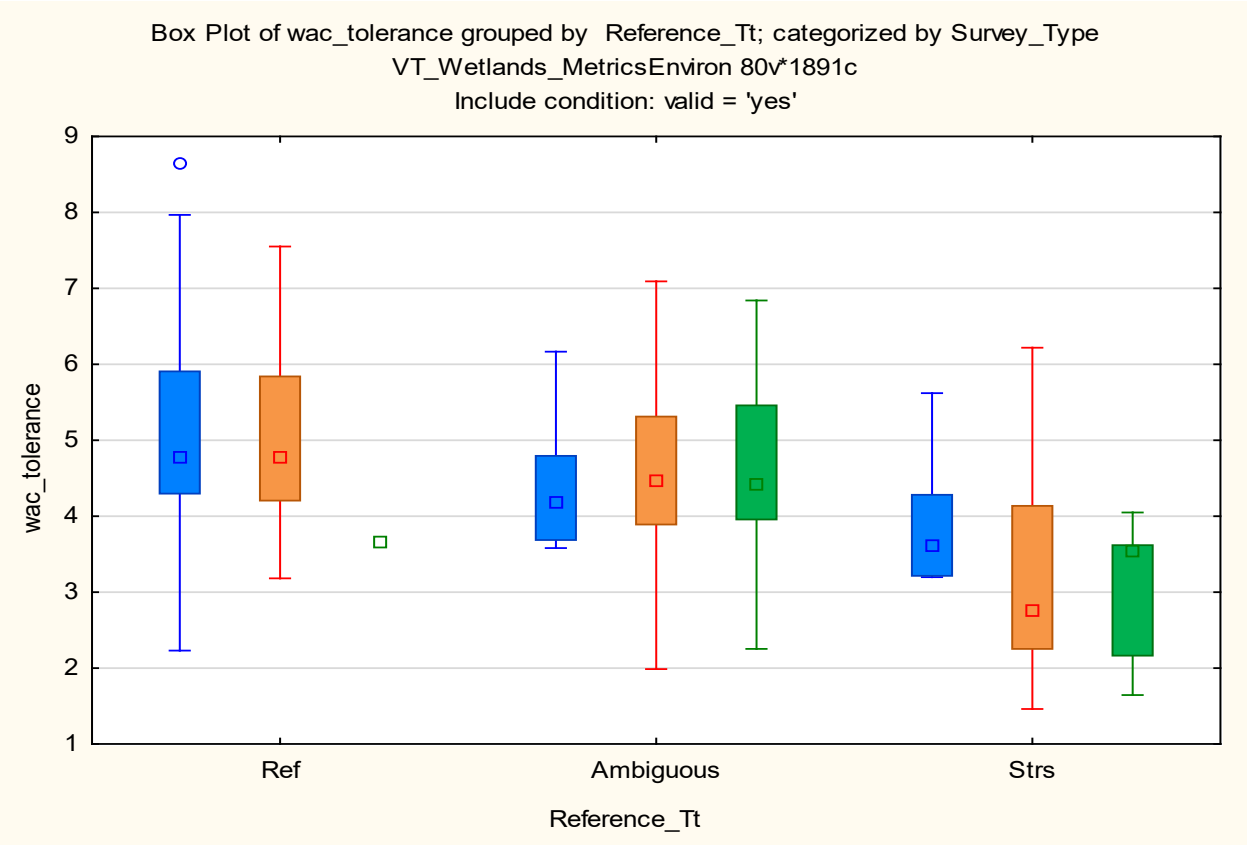
100
80
60
40
20
0
-20
Ref
Ambiguous
Strs
Reference_Tt


Box Plot of wac_tolerance grouped by Reference_Tt; categorized by Survey_Type
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Include condition: valid = 'yes'
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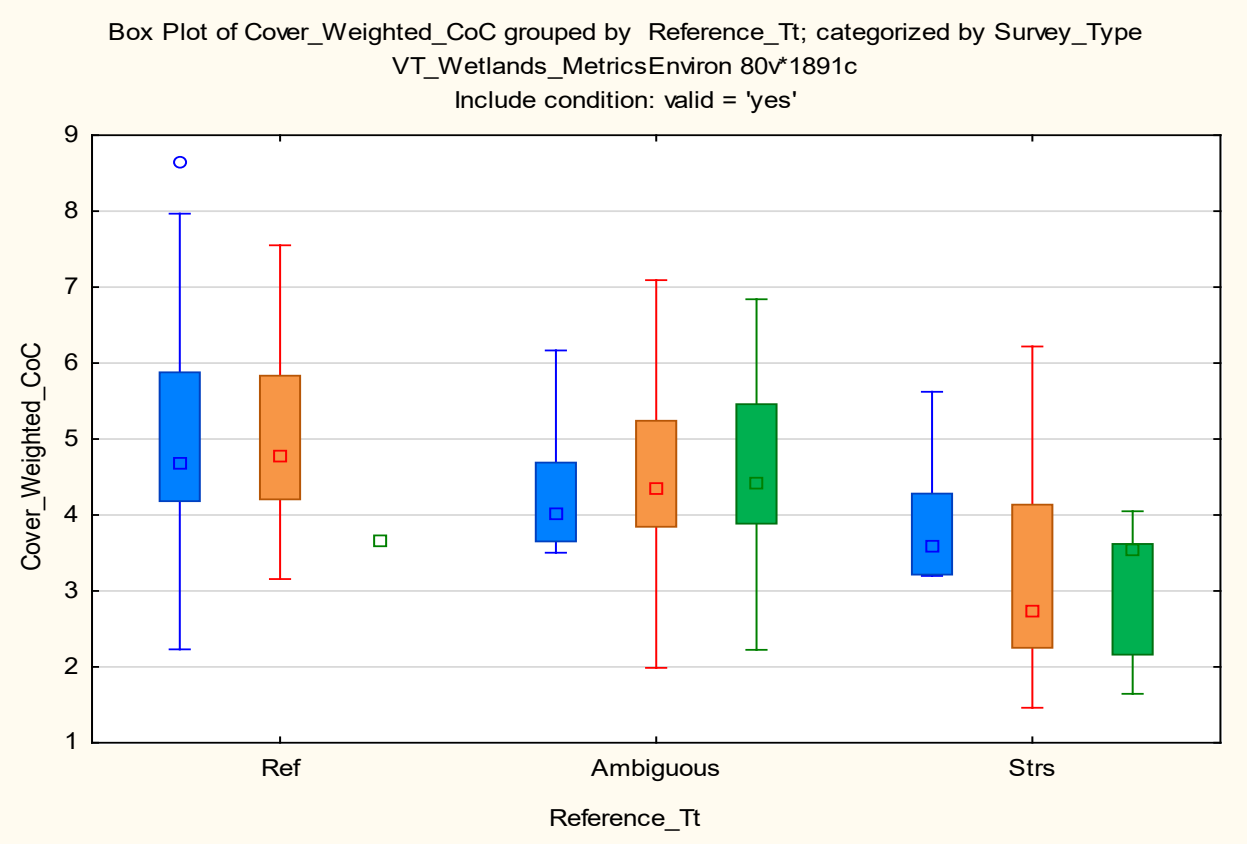
8
7
6
5
4
3
2
1
Ref
Ambiguous
Strs
Reference_Tt

Appendix A.


Box Plot of Cover_Weighted_CoC grouped by Reference_Tt; categorized by Survey_Type
VT_Wetlands_MetricsEnviron 80v*1891c
Include condition: valid = 'yes'
Cover_Weighted_CoC
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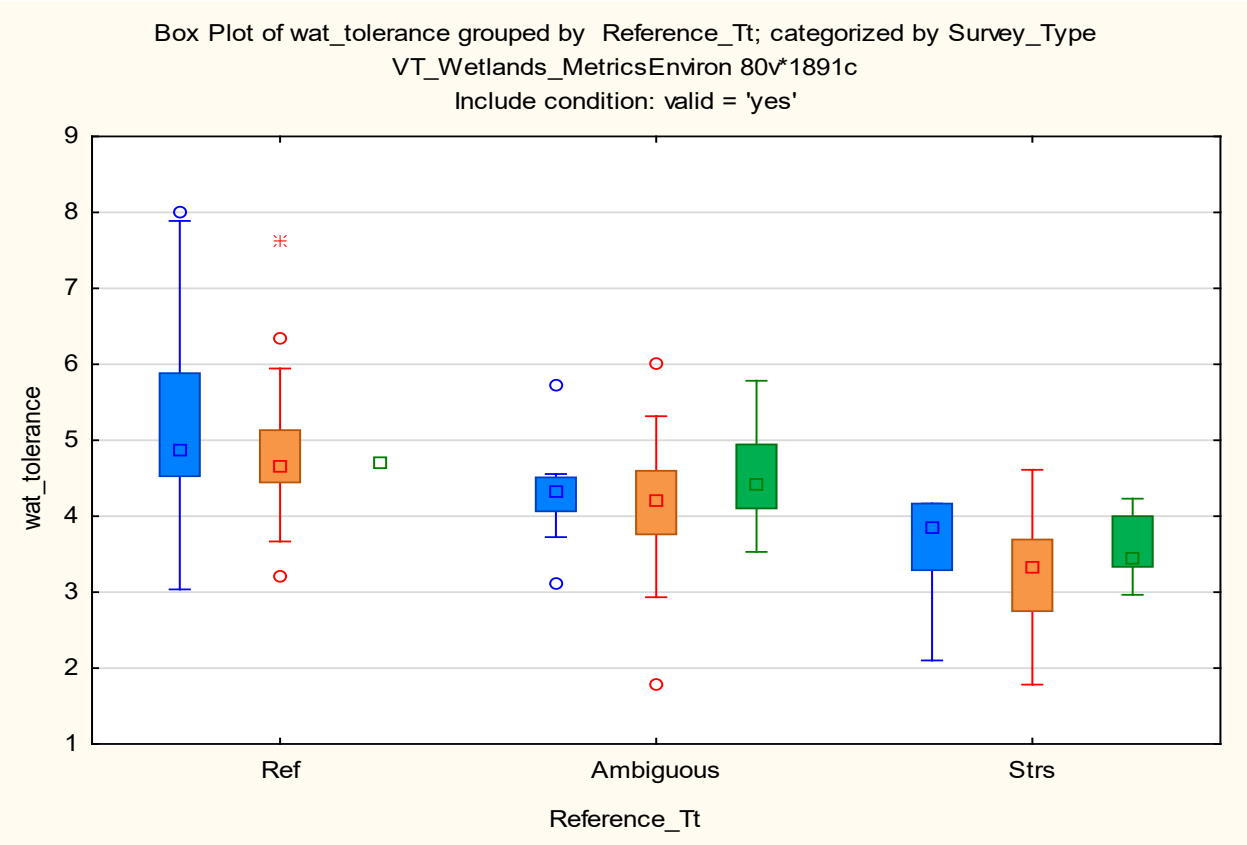
8
7
6
5
4
3
2
1
Ref
Ambiguous
Strs
Reference_Tt


Box Plot of wat_tolerance grouped by Reference_Tt; categorized by Survey_Type
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Include condition: valid = 'yes'
wat_tolerance
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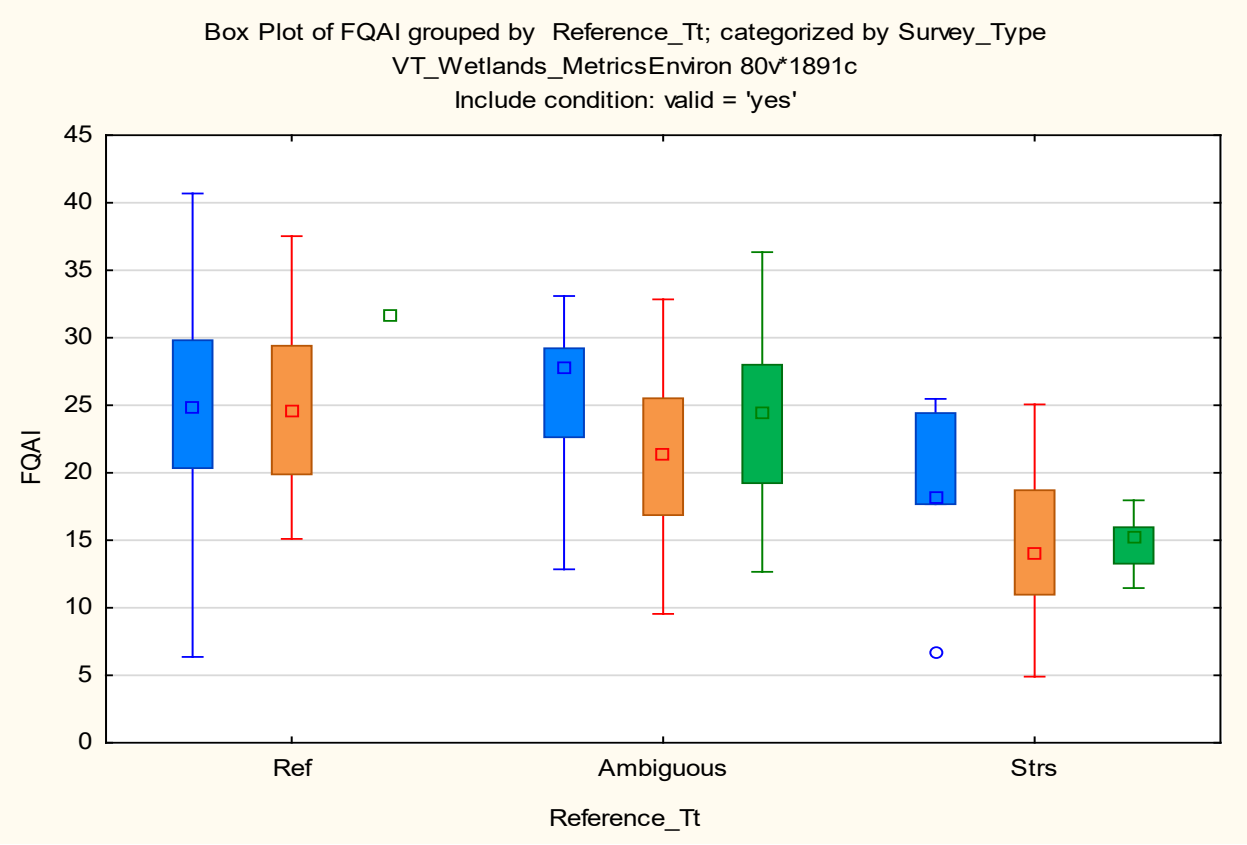
8
7
6
5
4
3
2
1
Ref
Ambiguous
Strs
Reference_Tt

Appendix A.


Box Plot of FQAI grouped by Reference_Tt; categorized by Survey_Type
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FQAI
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40
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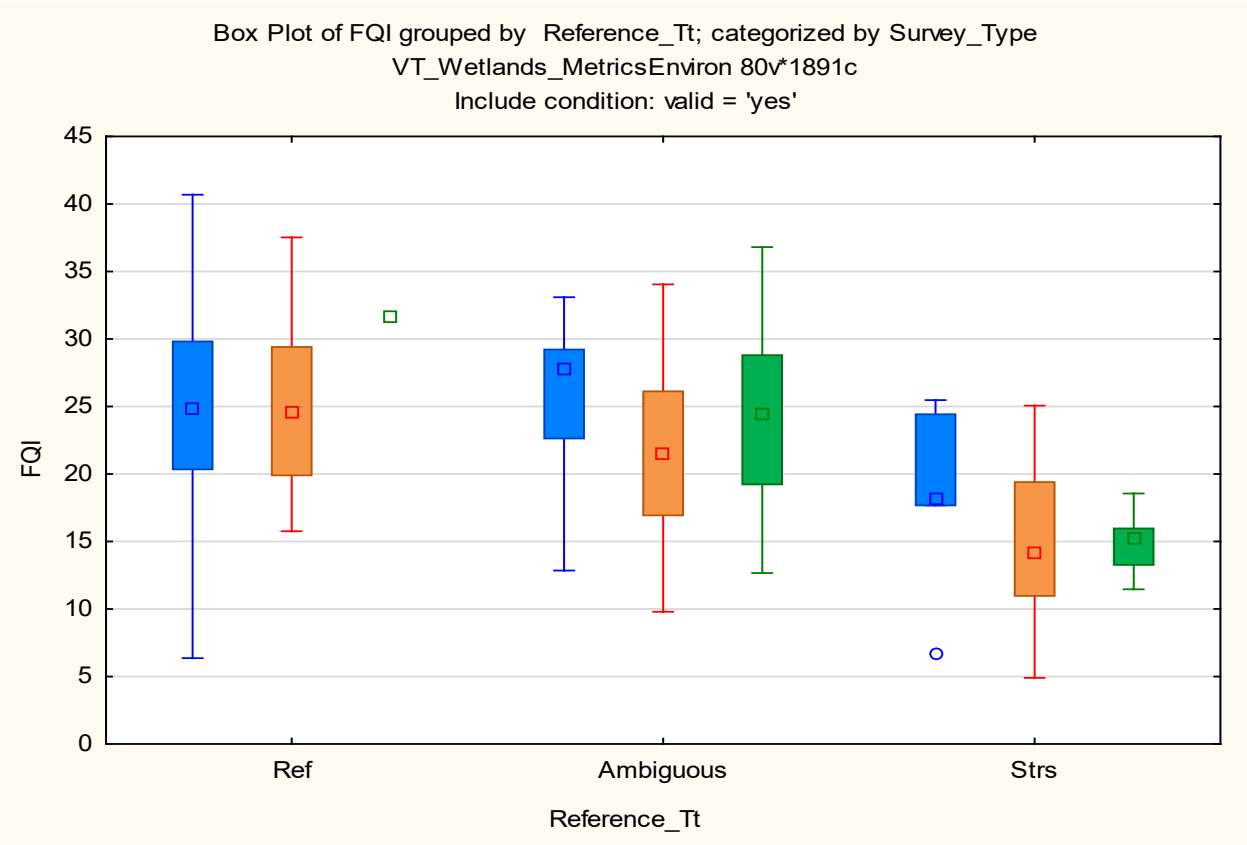
30
25
20
15
10
5
0
Ref
Ambiguous
Strs
Reference_Tt


Box Plot of FQI grouped by Reference_Tt; categorized by Survey_Type
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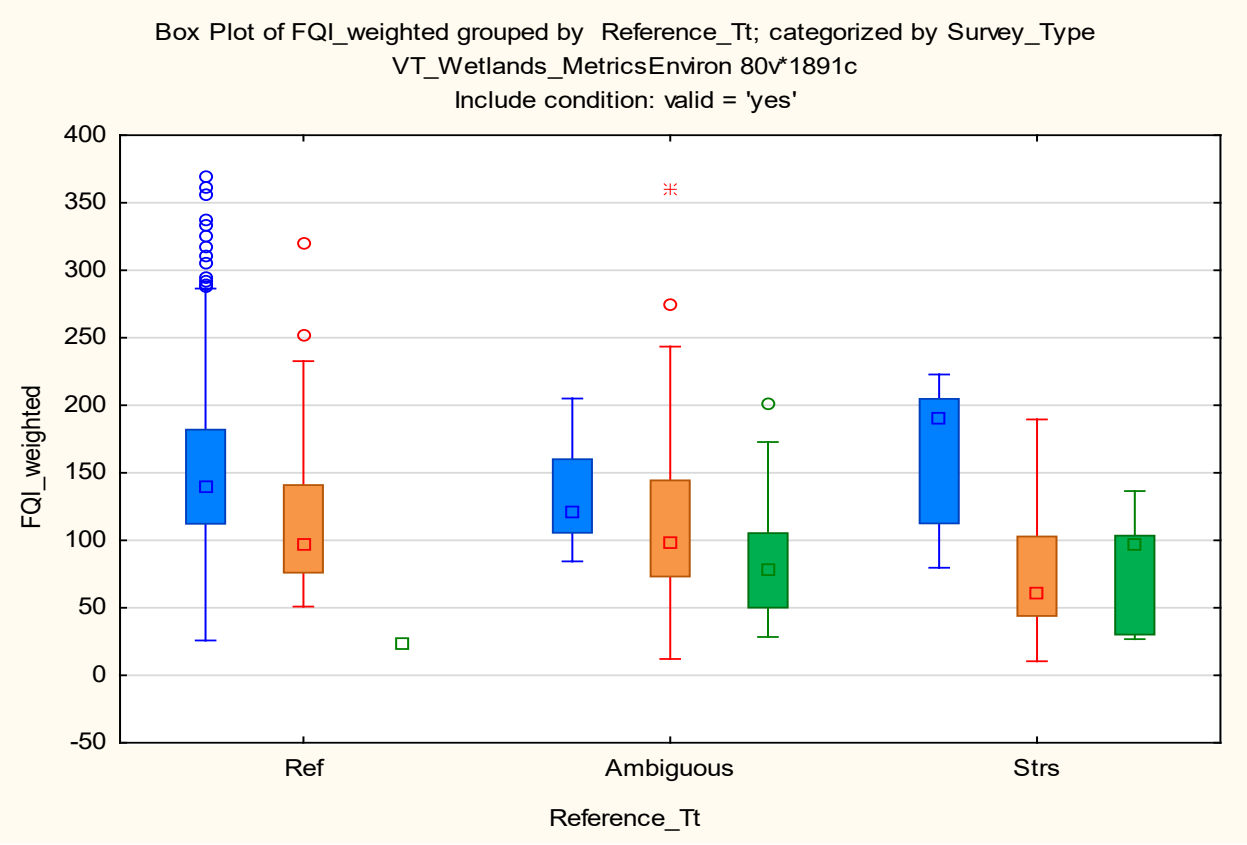
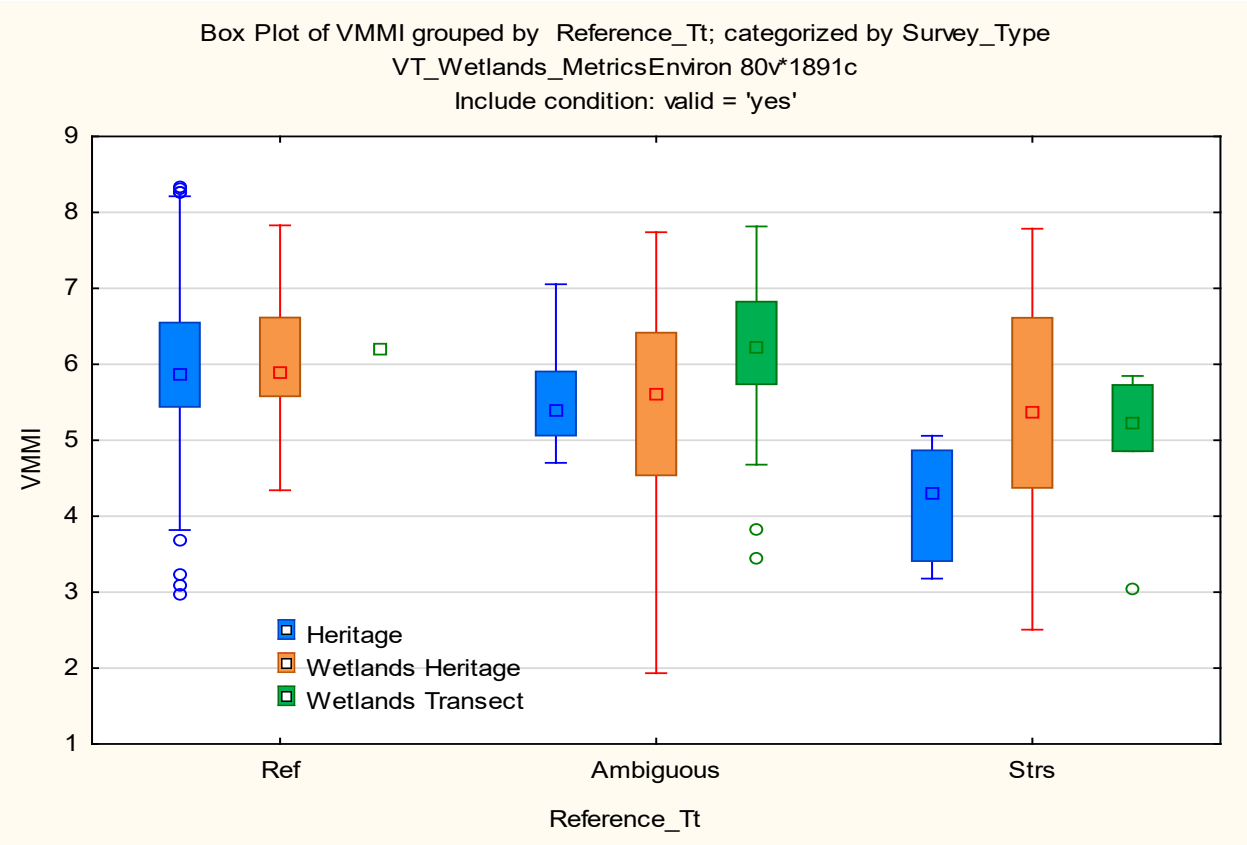
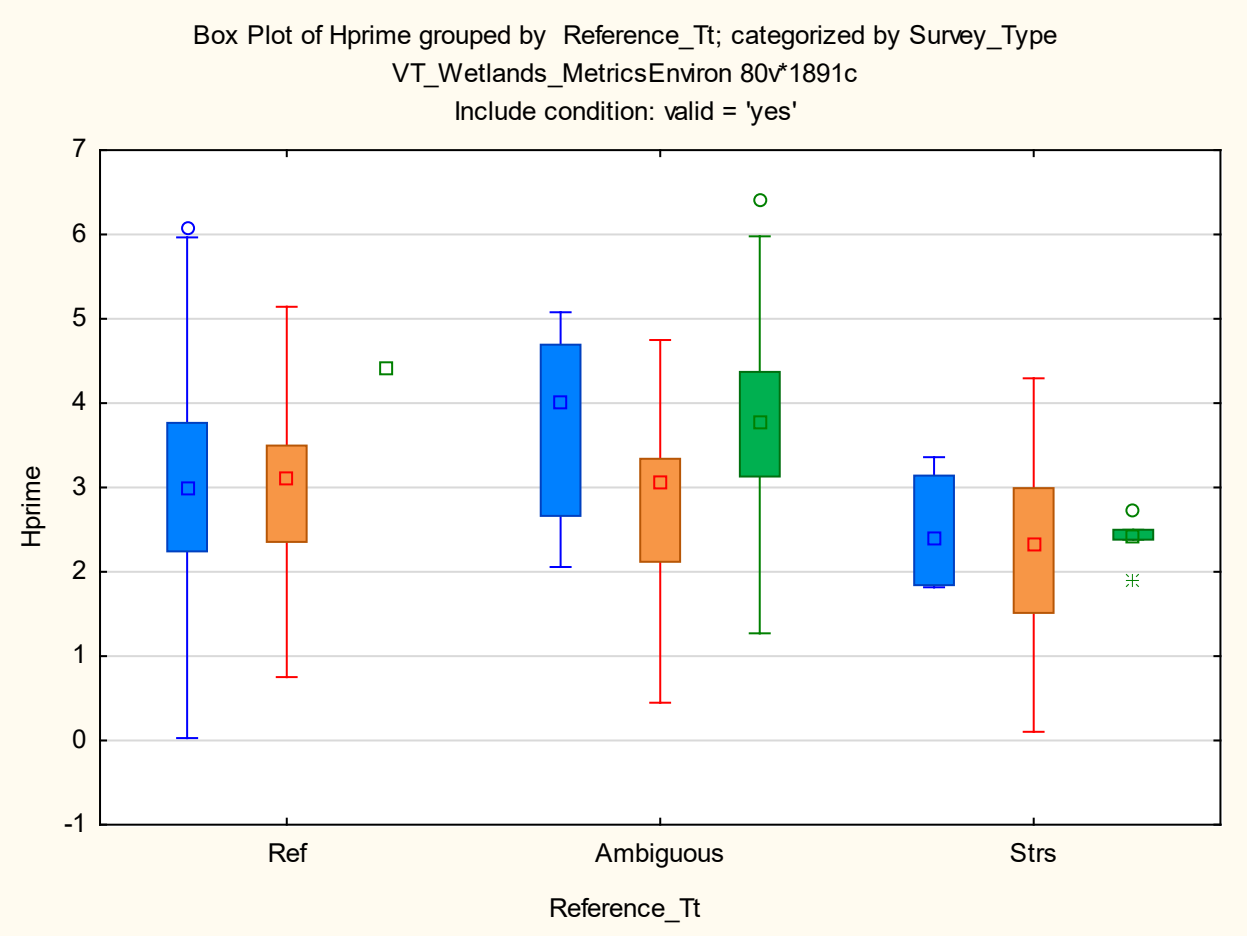
Include condition: valid = 'yes'
FQI
45
40
35
30
25
20
15
10
5
0
Ref
Ambiguous
Strs
Reference_Tt

Appendix A.

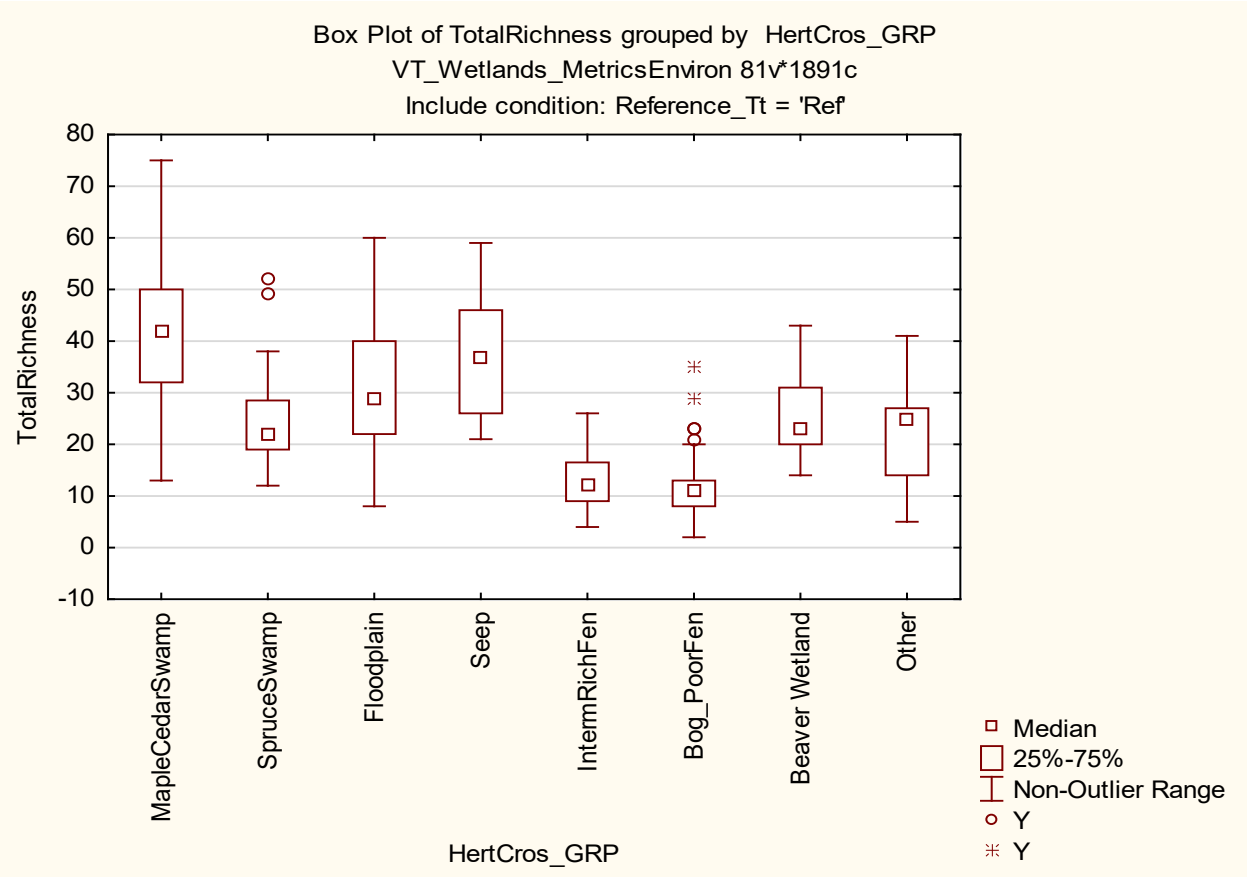

Box Plot of FQI_weighted grouped by Reference_Tt; categorized by Survey_Type
VT_Wetlands_MetricsEnviron 80v*1891c
Include condition: valid = 'yes'
FQI_weighted
400
350
300
250
200
150
100
50
0
-50
Ref
Ambiguous
Strs
Reference_Tt

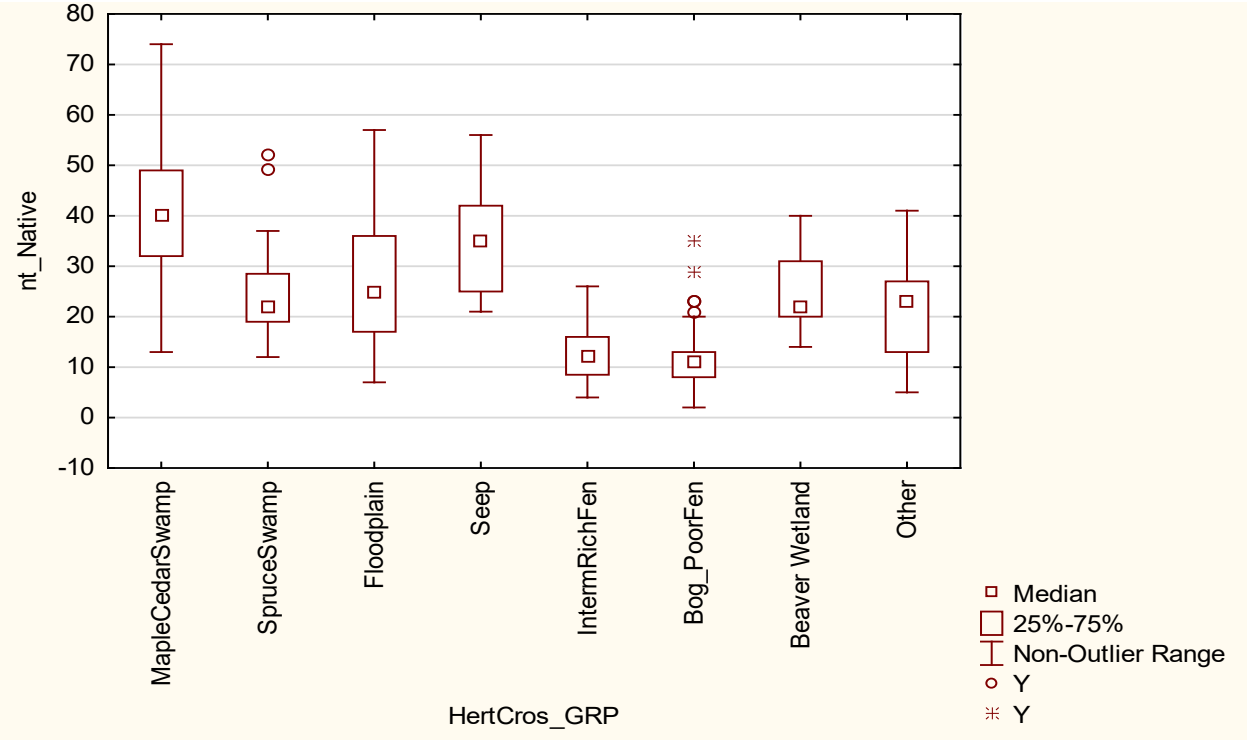

Box Plot of VMMI grouped by Reference_Tt; categorized by Survey_Type
VT_Wetlands_MetricsEnviron 80v*1891c
Include condition: valid = 'yes'
VMMI
9
8
7
6
5
4
3
2
1
Heritage
Wetlands Heritage
Wetlands Transect
Ref
Ambiguous
Strs
Reference_Tt

Appendix A.

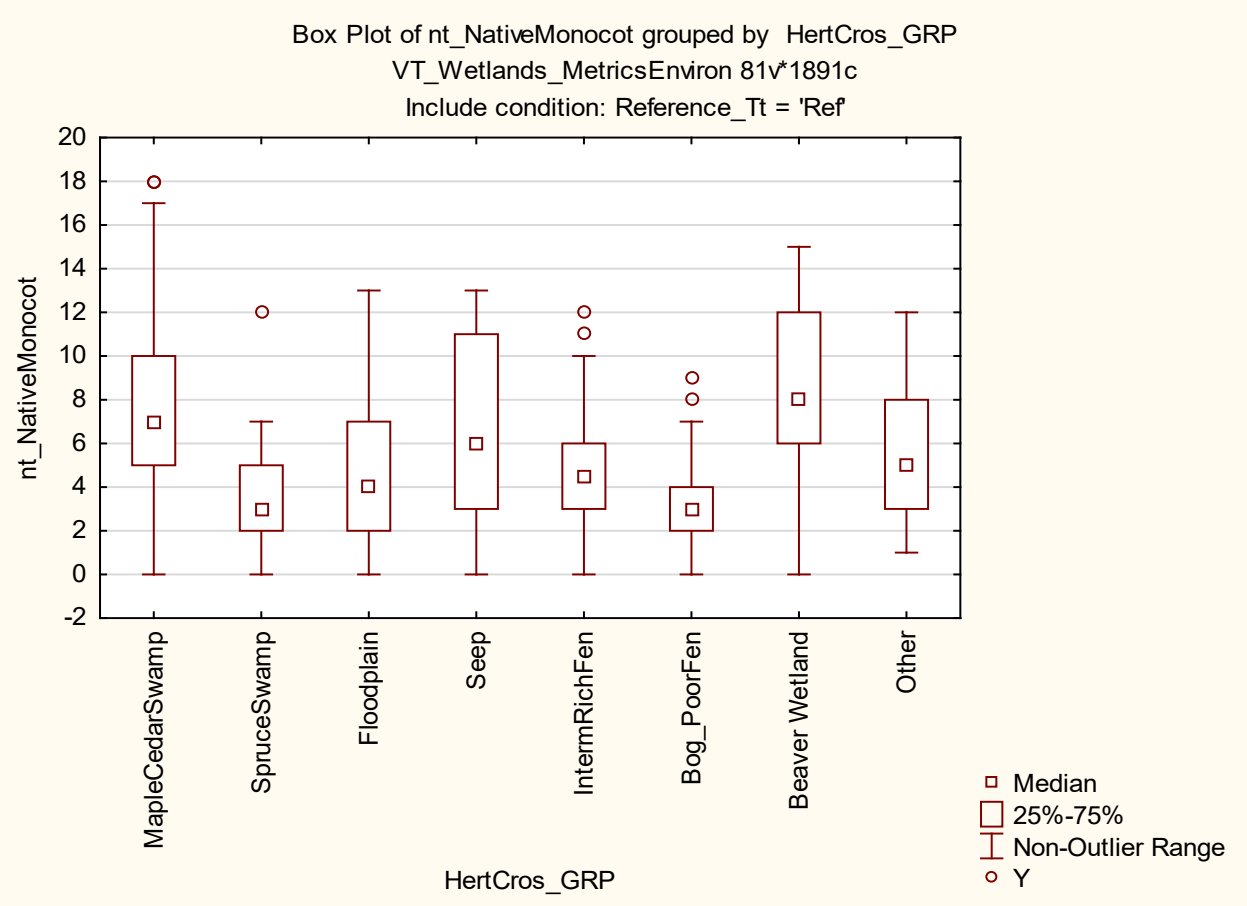

Box Plot of Hprime grouped by Reference_Tt; categorized by Survey_Type
VT_Wetlands_MetricsEnviron 80v*1891c
Include condition: valid = 'yes'
Hprime
7
6
5
4
3
2
1
0
-1
Ref
Ambiguous
Strs
Reference_Tt

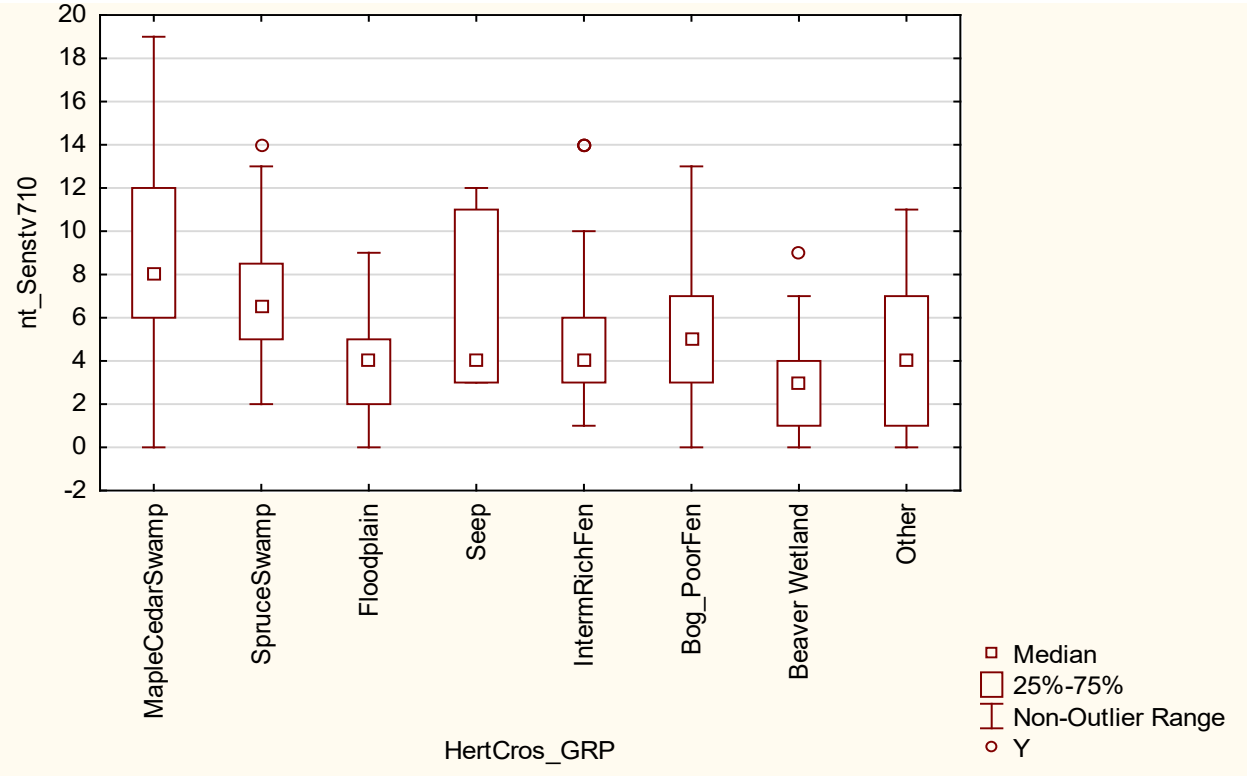
Appendix B. Reference metric distributions in preliminary site groupings.



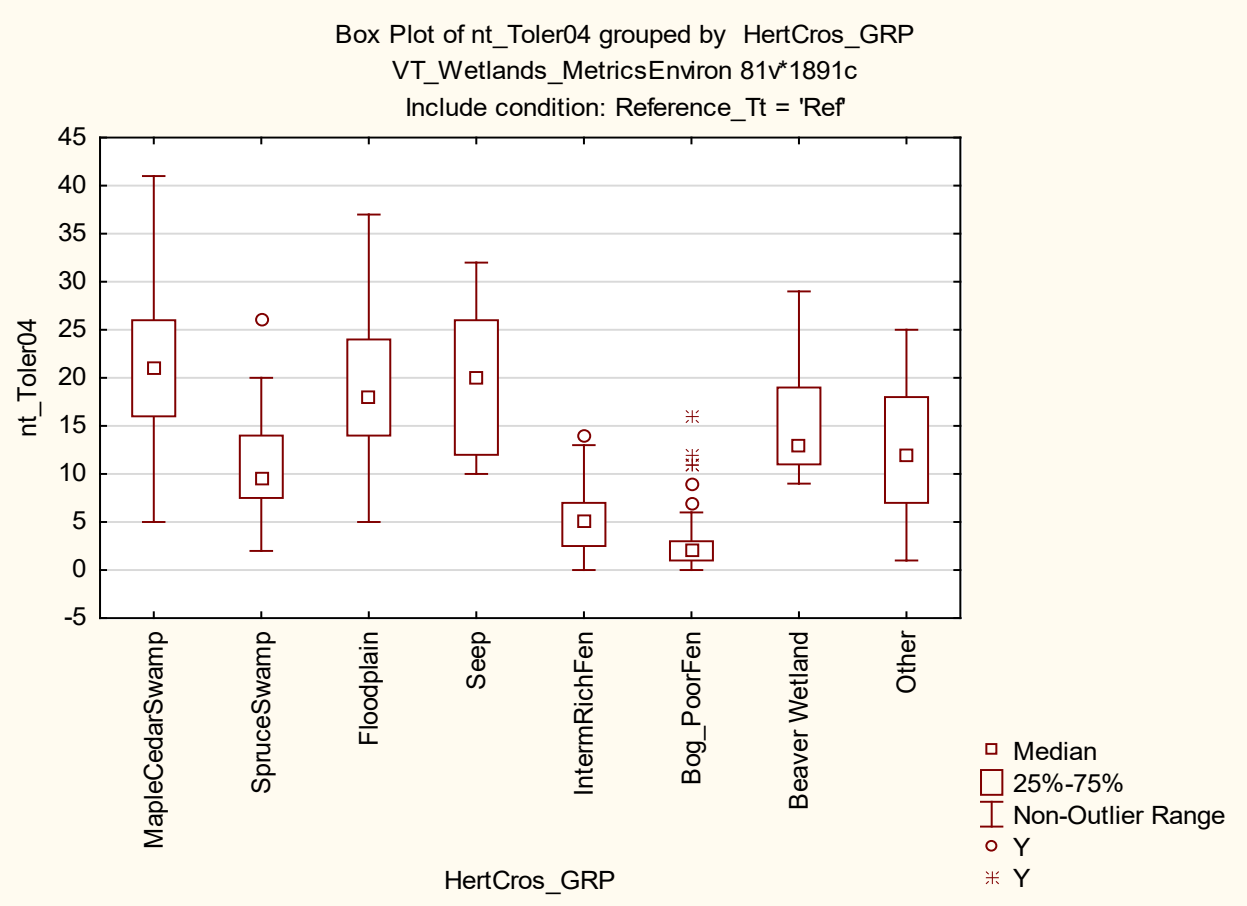


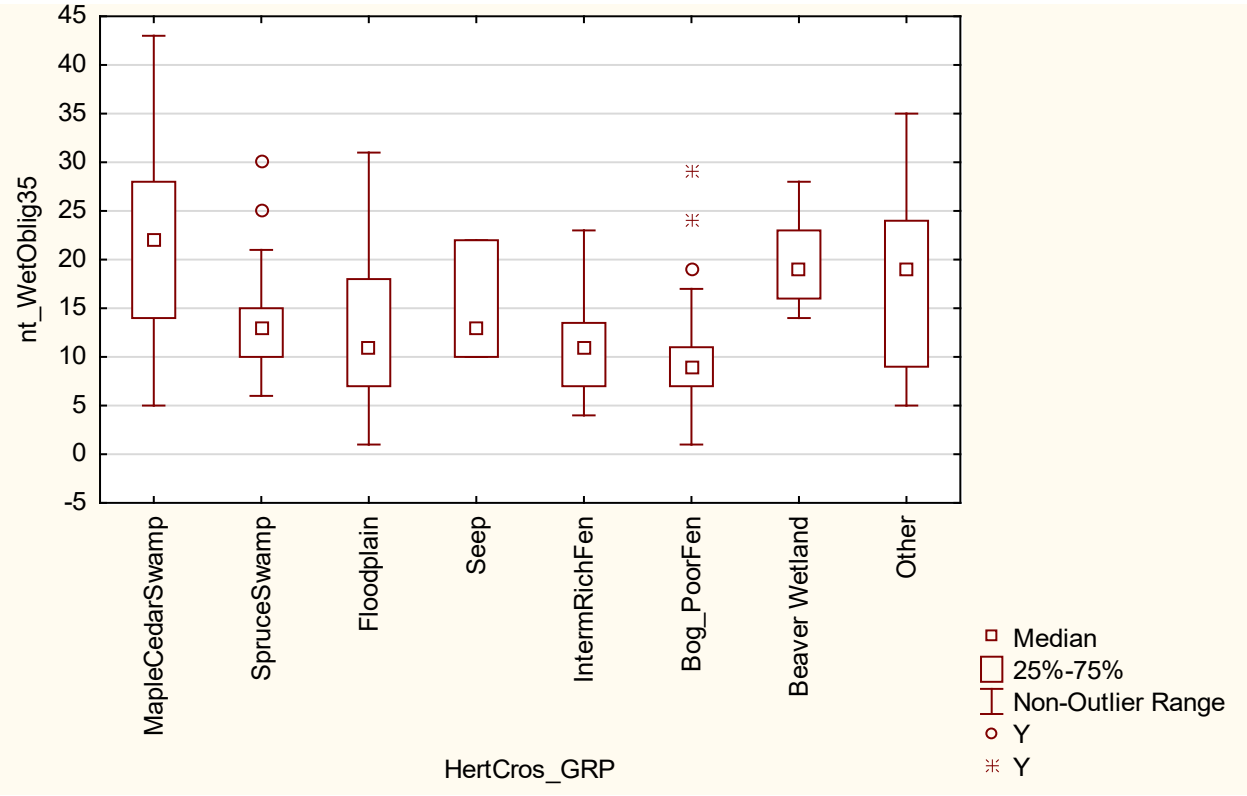
Appendix B.


Box Plot of nt_NativeMonocot grouped by HertCros_GRP
VT_Wetlands_MetricsEnviron 81v*1891c
Include condition: Reference_Tt = 'Ref'
nt_NativeMonocot
20
18
16
14
12
10
8
6
4
2
0
-2
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y

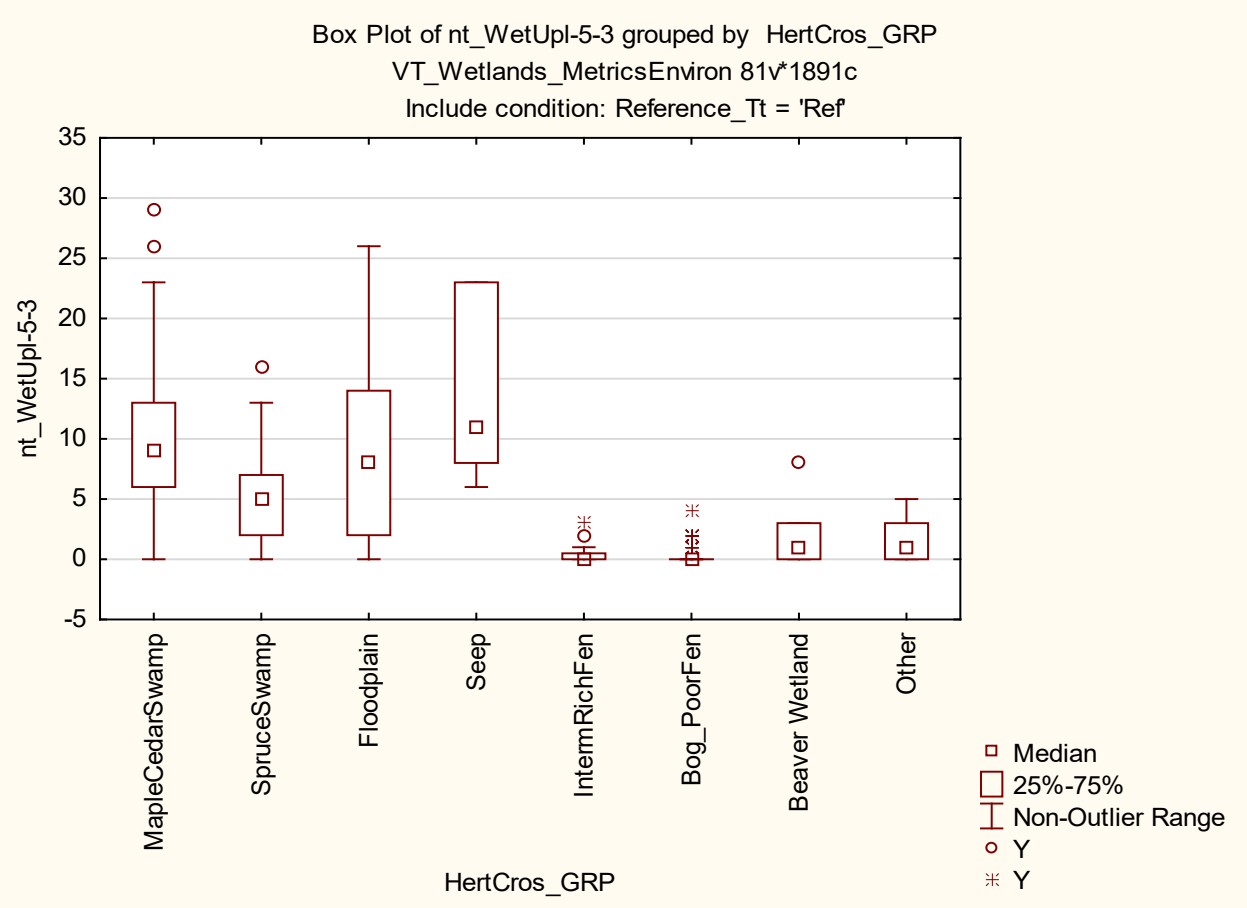

nt_Senstv710
20
18
16
14
12
10
8
6
4
2
0
-2
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y

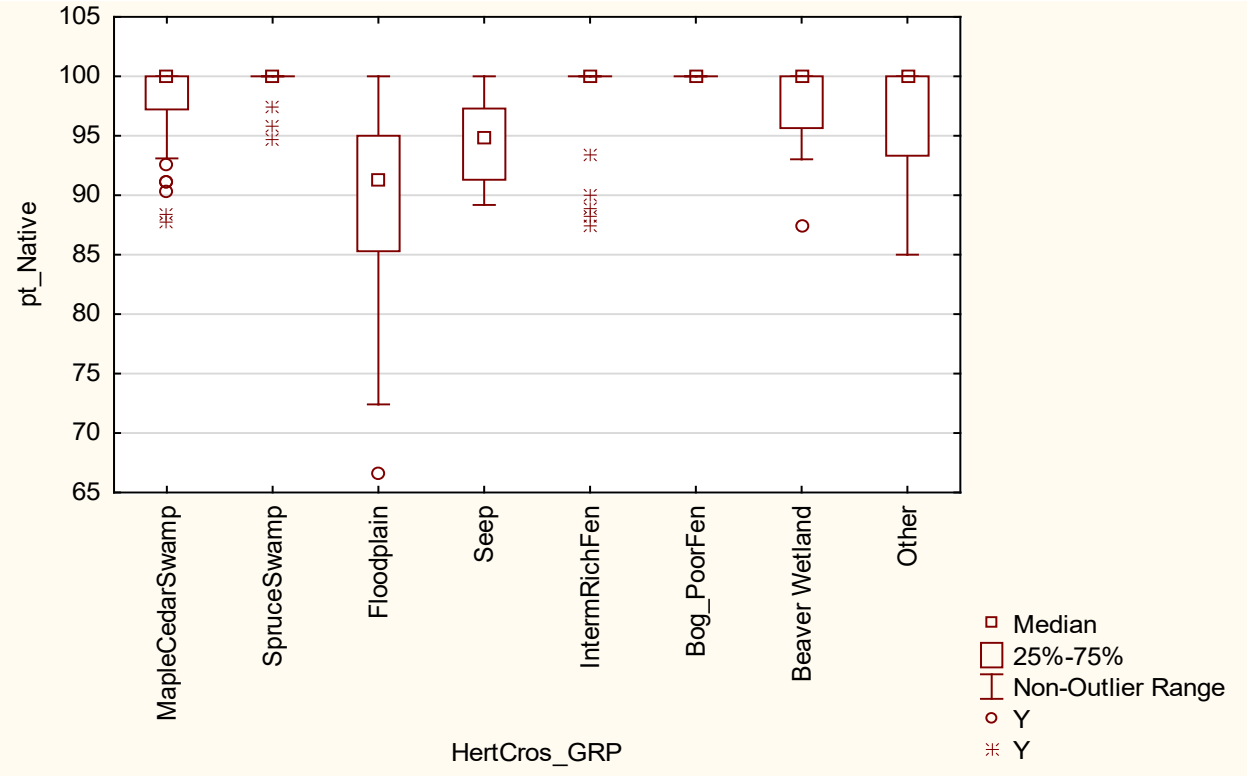
Appendix B.


Box Plot of nt_Toler04 grouped by HertCros_GRP
VT_Wetlands_MetricsEnviron 81v*1891c
Include condition: Reference_Tt = 'Ref'
nt_Toler04
45
40
35
30
25
20
15
10
5
0
-5
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y
Y

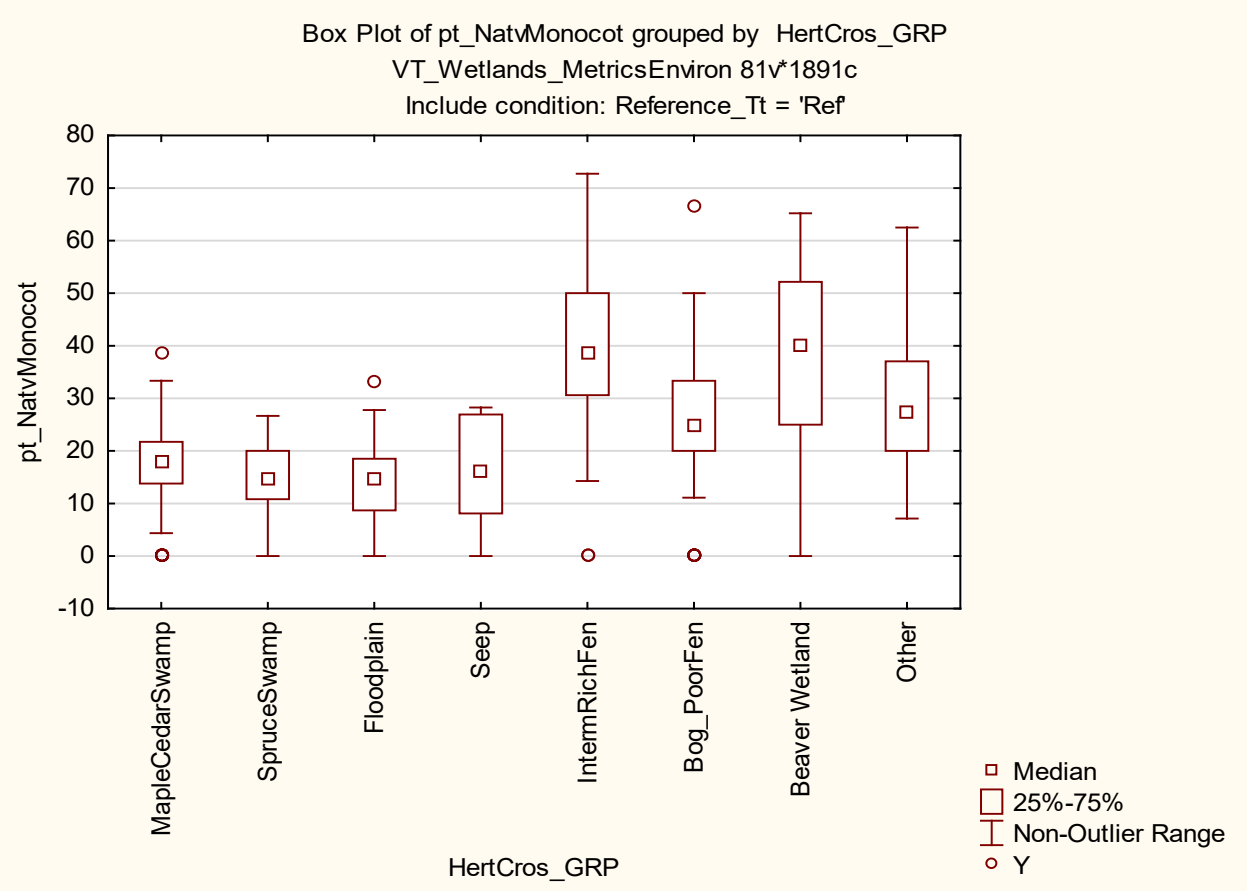

nt_WetOblig35
45
40
35
30
25
20
15
10
5
0
-5
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y
Y

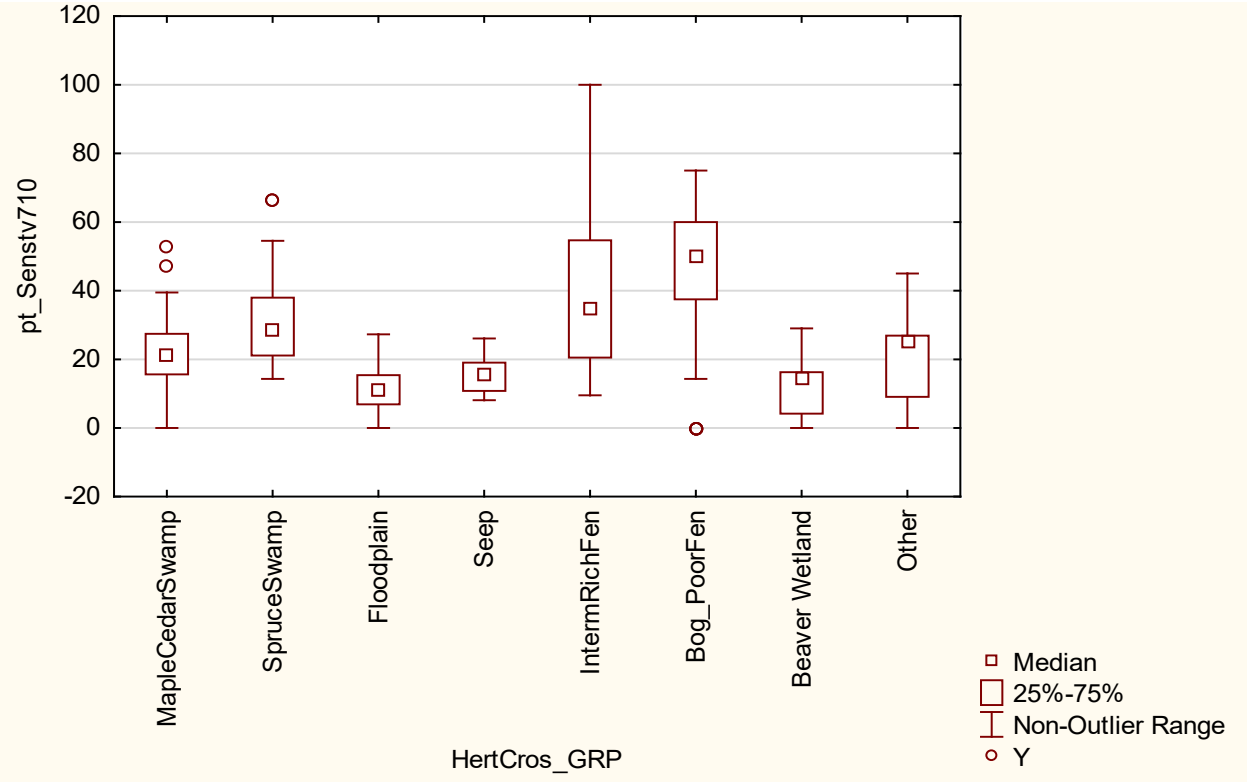
Appendix B.


Box Plot of nt_WetUpl-5-3 grouped by HertCros_GRP
VT_Wetlands_MetricsEnviron 81v*1891c
Include condition: Reference_Tt = 'Ref'
nt_WetUpl-5-3
35
30
25
20
15
10
5
0
-5
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y
Y

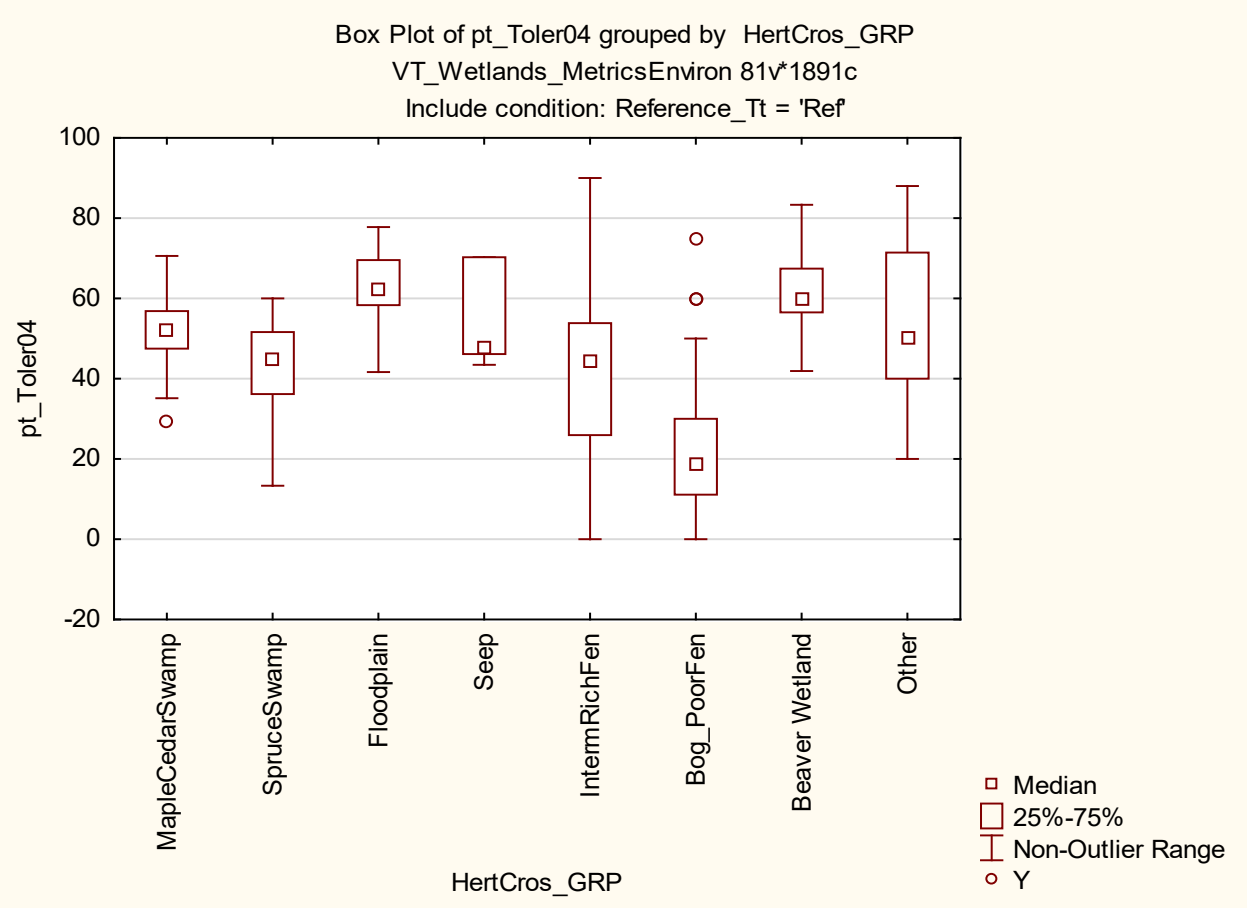

pt_Native
105
100
95
90
85
80
75
70
65
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y
Y

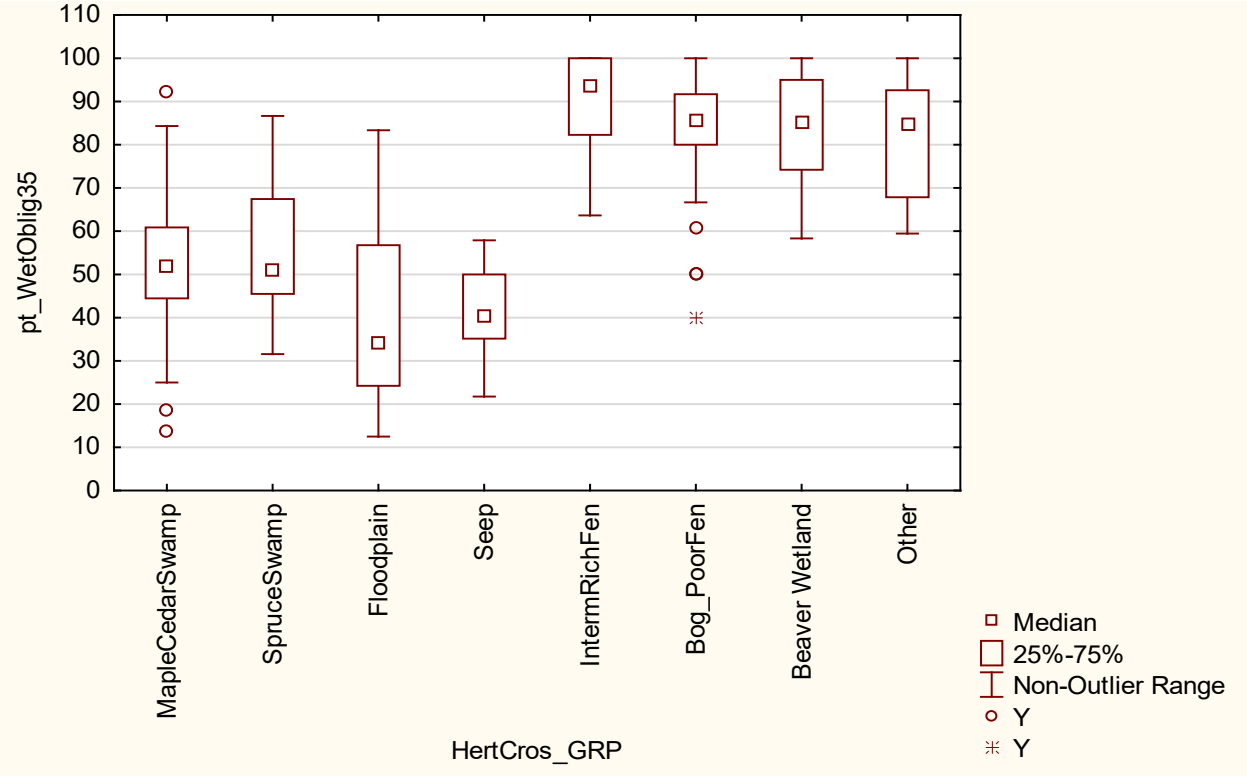
Appendix B.


Box Plot of pt_NatvMonocot grouped by HertCros_GRP
VT_Wetlands_MetricsEnviron 81v*1891c
Include condition: Reference_Tt = 'Ref'
pt_NatvMonocot
80
70
60
50
40
30
20
10
0
-10
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y

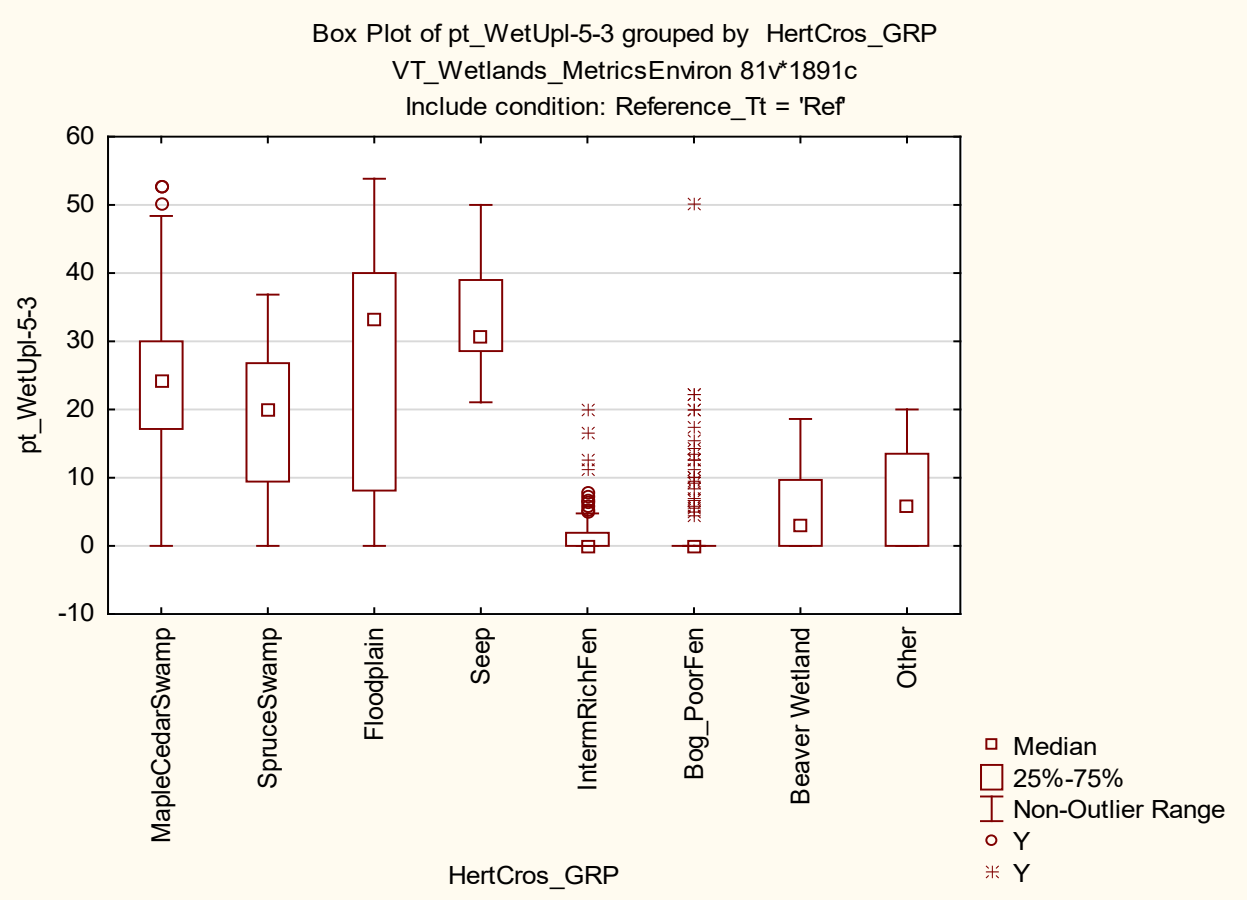

pt_Senstv710
120
100
80
60
40
20
0
-20
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y

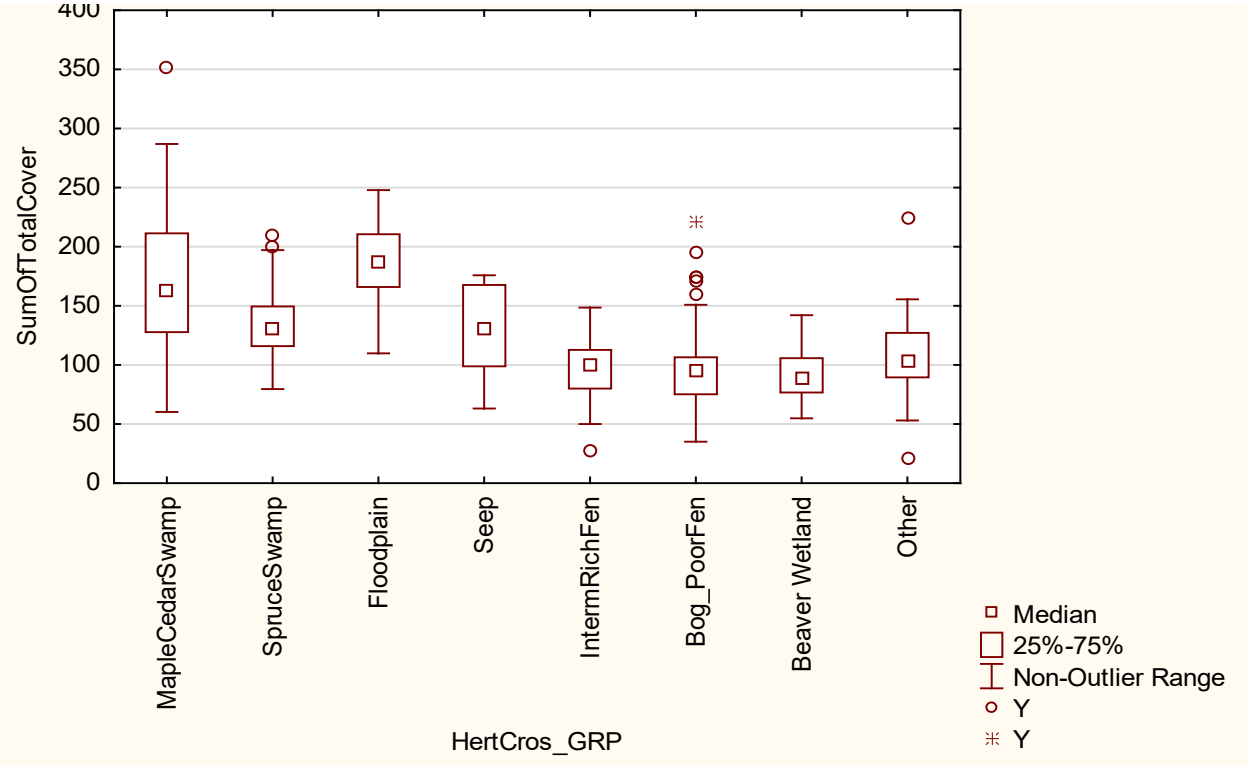
Appendix B.


Box Plot of pt_Toler04 grouped by HertCros_GRP
VT_Wetlands_MetricsEnviron 81v*1891c
Include condition: Reference_Tt = 'Ref'
pt_Toler04
100
80
60
40
20
0
-20
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y

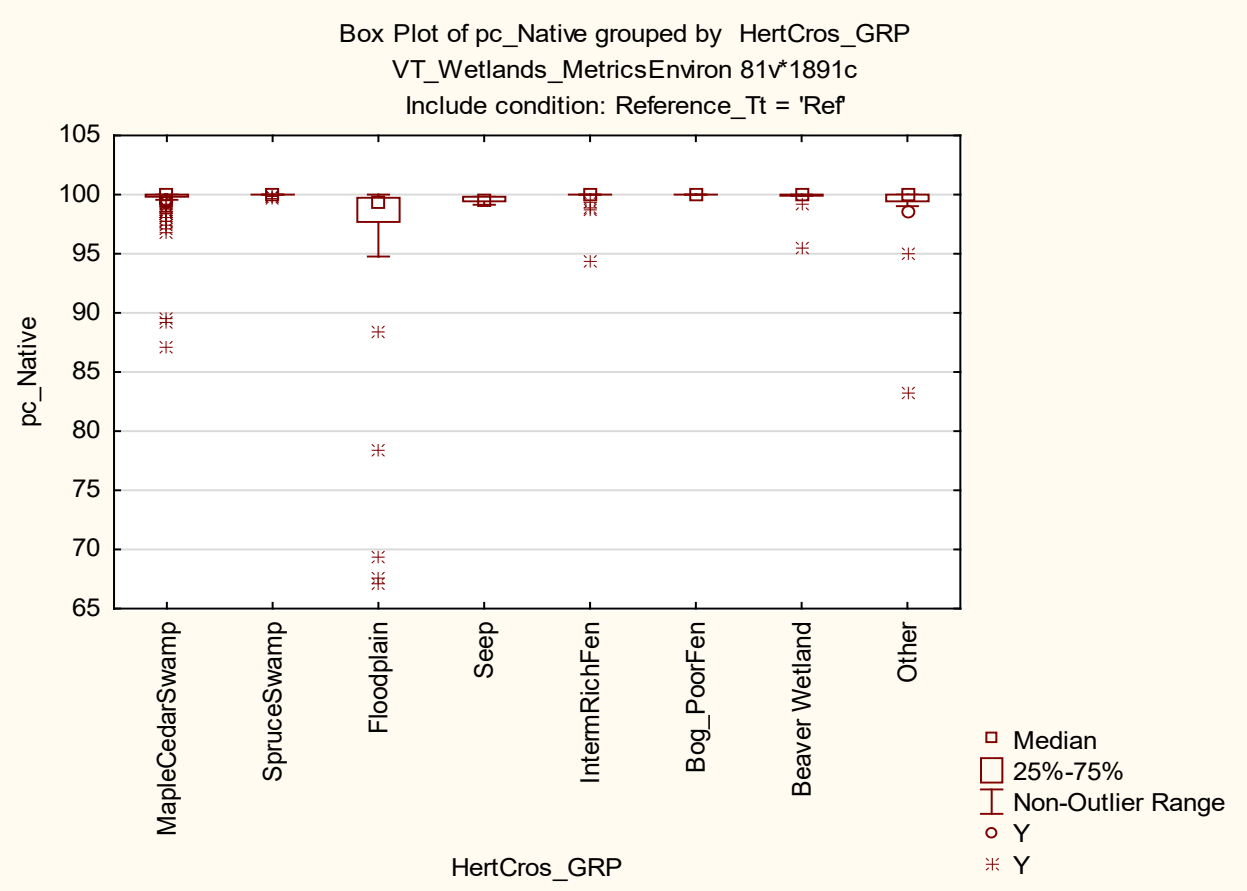

pt_WetOblig35
110
100
90
80
70
60
50
40
30
20
10
0
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y
Y

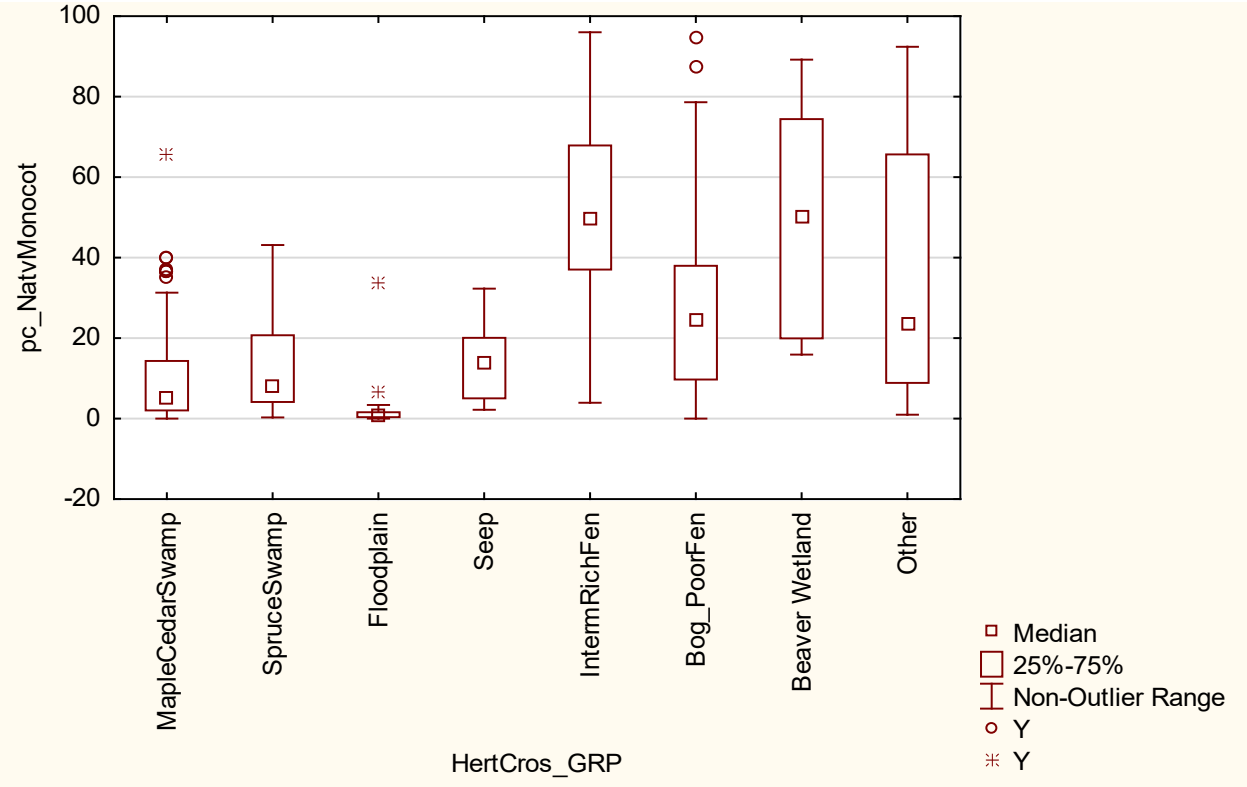
Appendix B.


Box Plot of pt_WetUpl-5-3 grouped by HertCros_GRP
VT_Wetlands_MetricsEnviron 81v*1891c
Include condition: Reference_Tt = 'Ref'
pt_WetUpl-5-3
60
50
40
30
20
10
0
-10
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y
Y

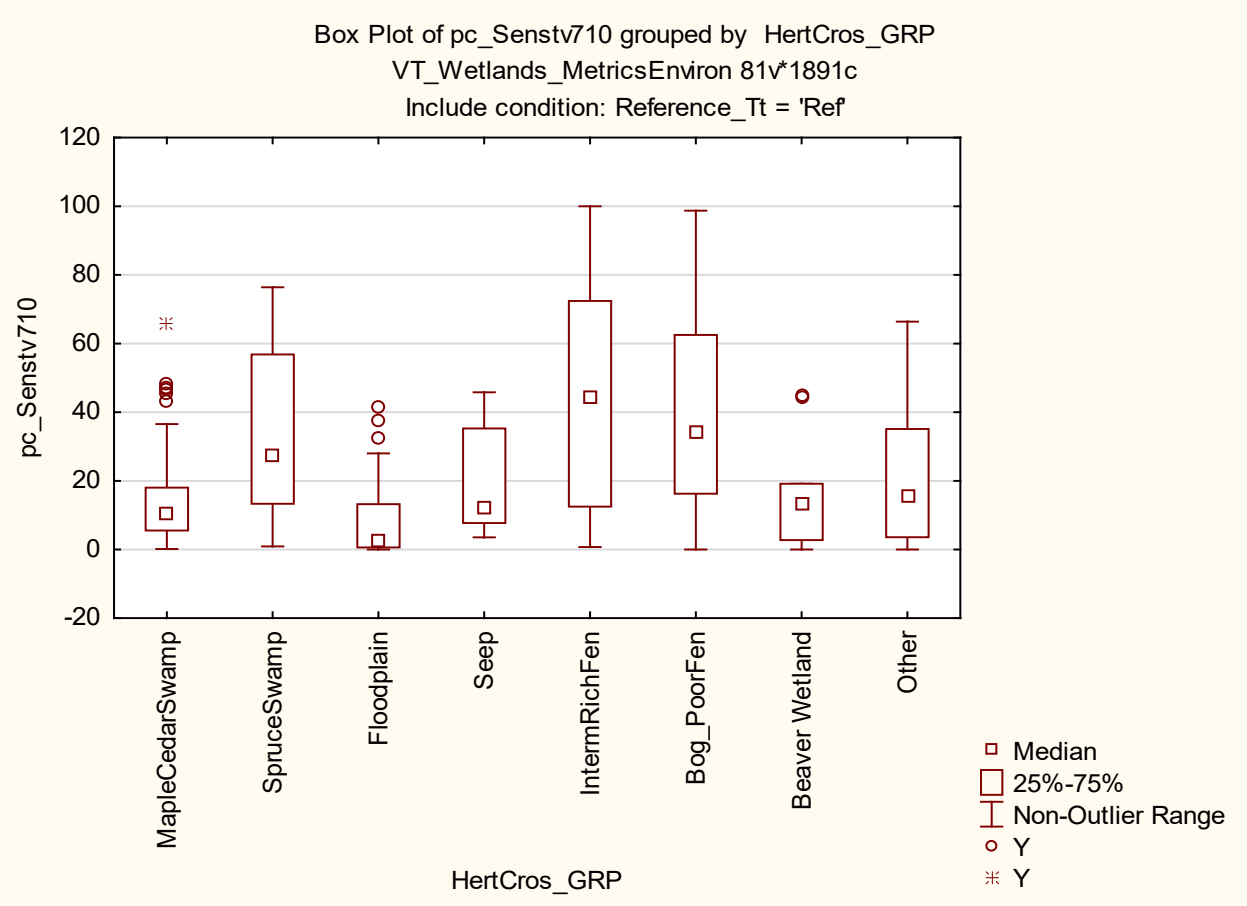

SumOfTotalCover
400
350
300
250
200
150
100
50
0
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y
Y

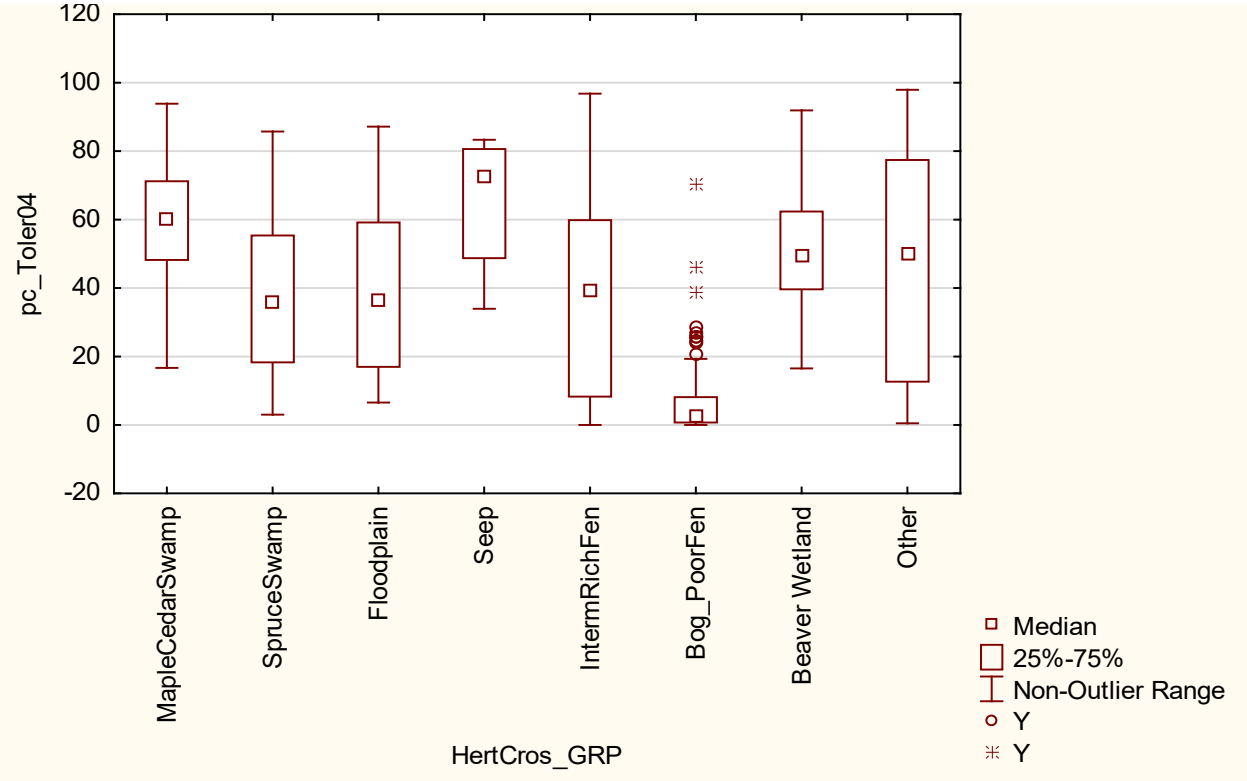
Appendix B.


Box Plot of pc_Native grouped by HertCros_GRP
VT_Wetlands_MetricsEnviron 81v*1891c
Include condition: Reference_Tt = 'Ref'
pc_Native
105
100
95
90
85
80
75
70
65
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y
Y

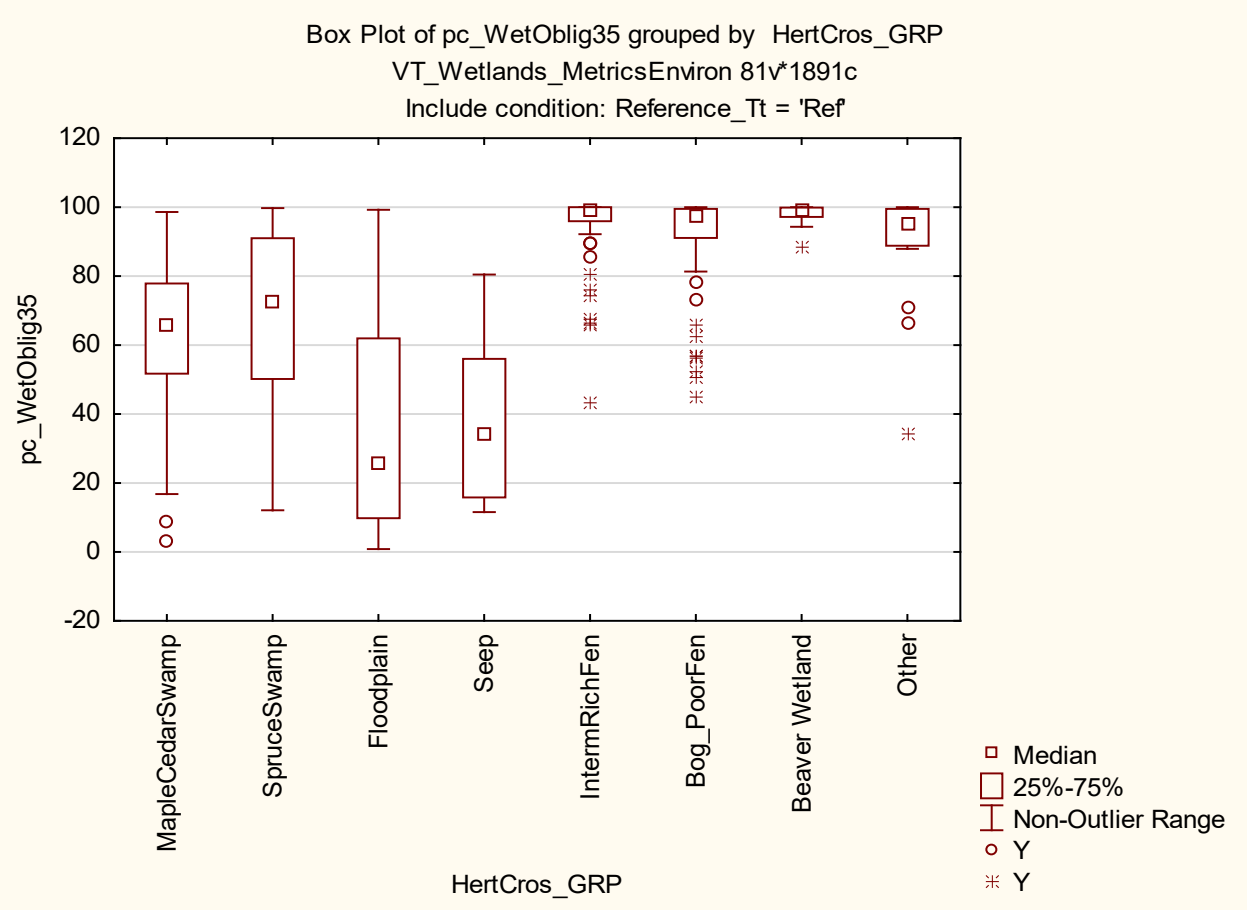

pc_NatvMonocot
100
80
60
40
20
0
-20
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y
Y

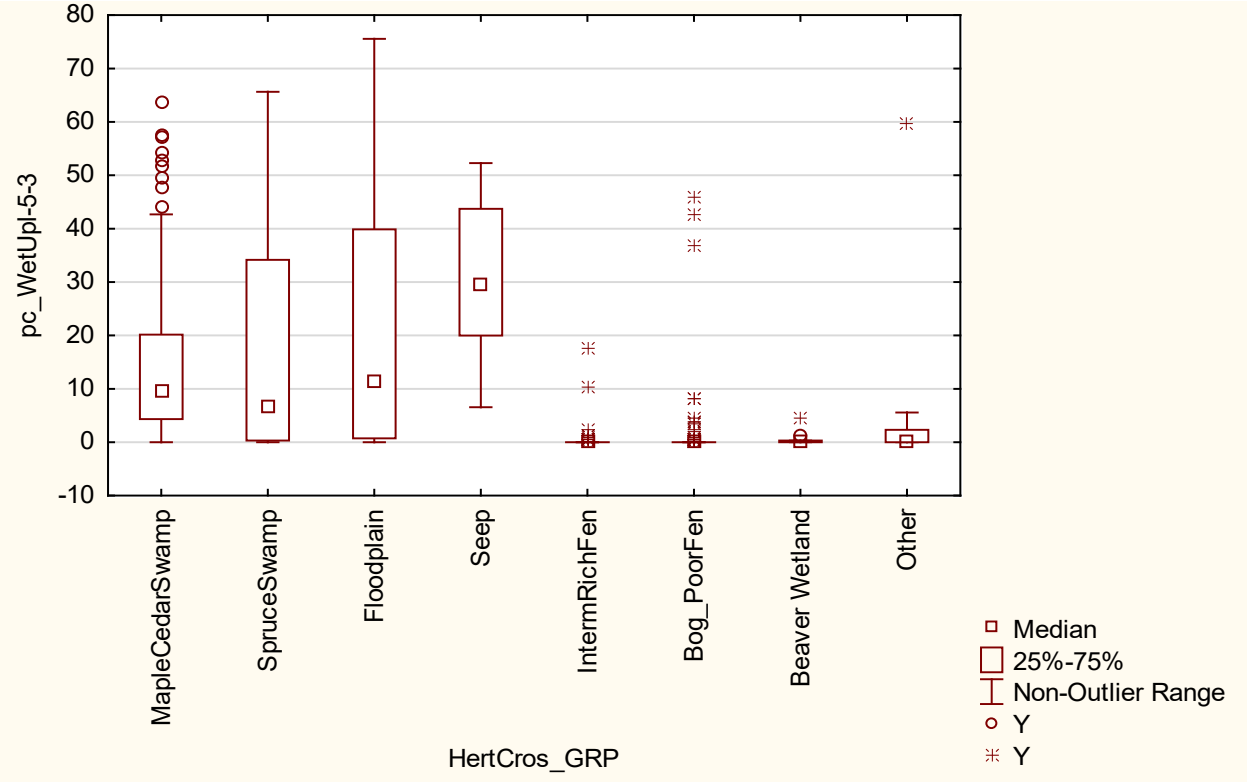
Appendix B.


Box Plot of pc_Senstv710 grouped by HertCros_GRP
VT_Wetlands_MetricsEnviron 81v*1891c
Include condition: Reference_Tt = 'Ref'
pc_Senstv710
120
100
80
60
40
20
0
-20
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y
Y

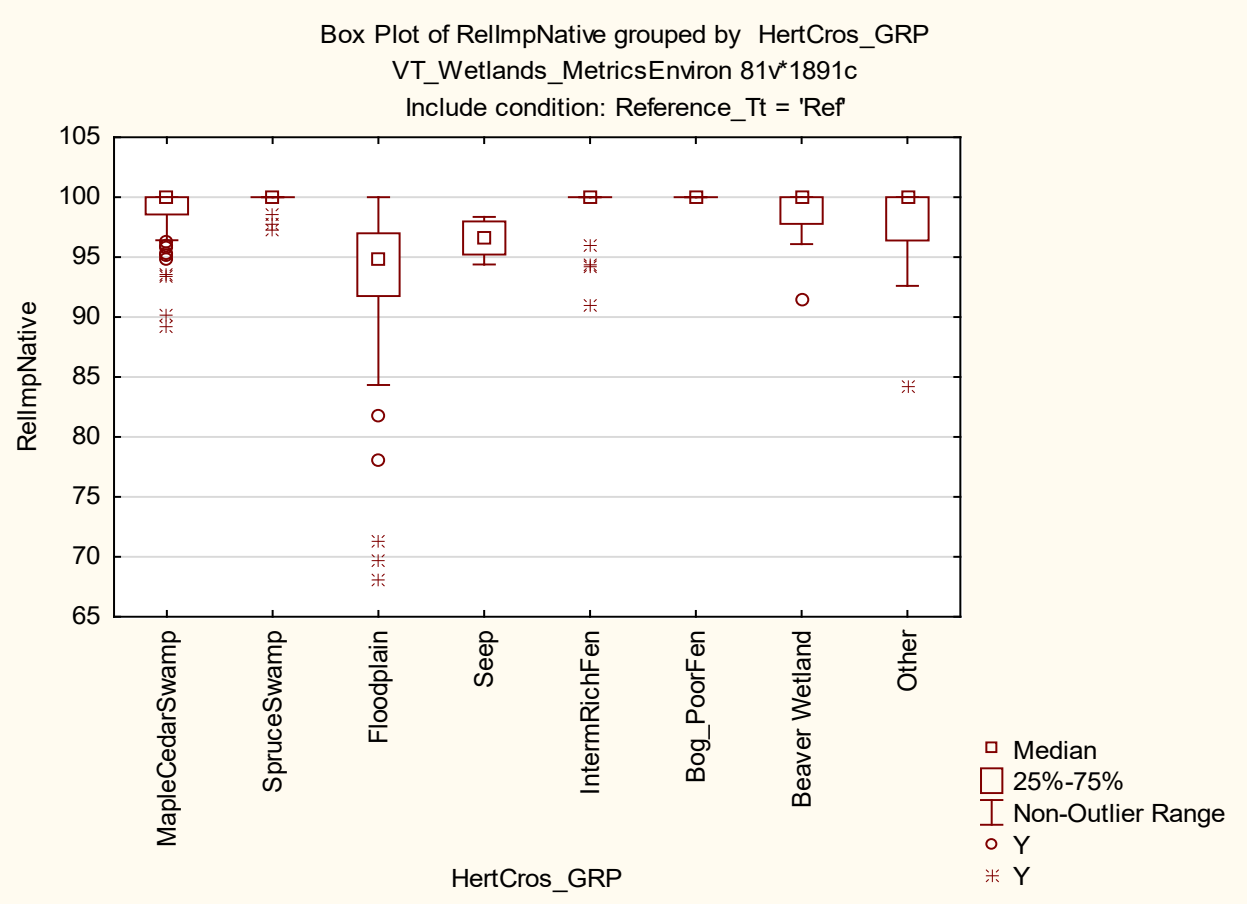

pc_Toler04
120
100
80
60
40
20
0
-20
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y
Y

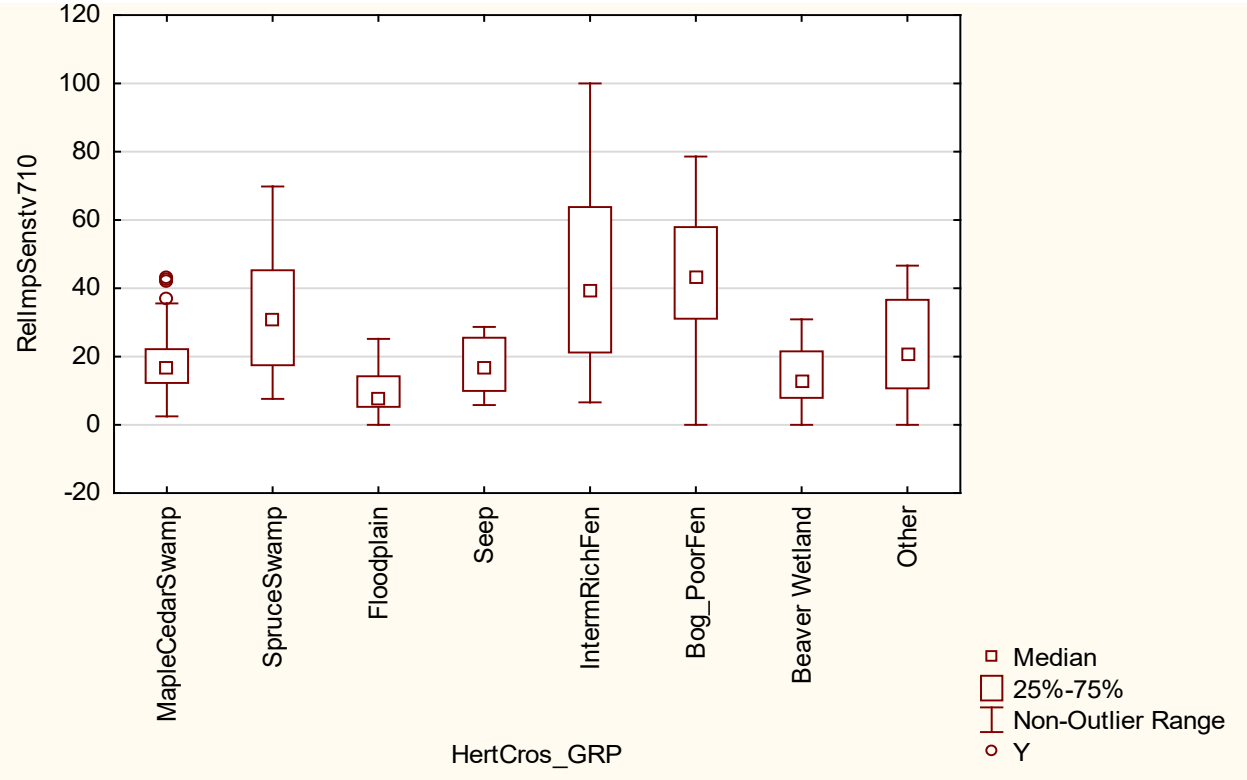
Appendix B.


Box Plot of pc_WetOblig35 grouped by HertCros_GRP
VT_Wetlands_MetricsEnviron 81v*1891c
Include condition: Reference_Tt = 'Ref'
pc_WetOblig35
120
100
80
60
40
20
0
-20
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y
Y

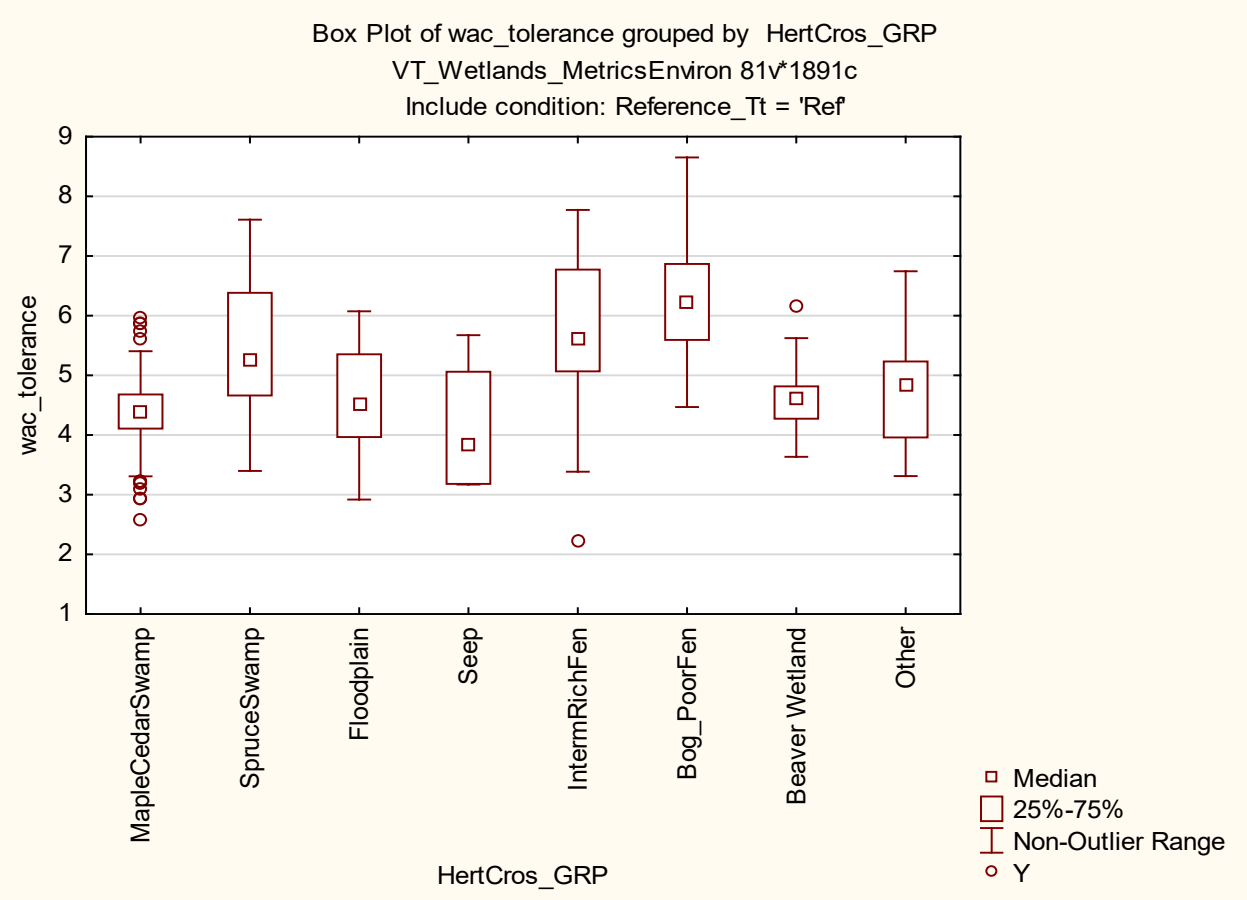

pc_WetUpl-5-3
80
70
60
50
40
30
20
10
0
-10
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y
Y

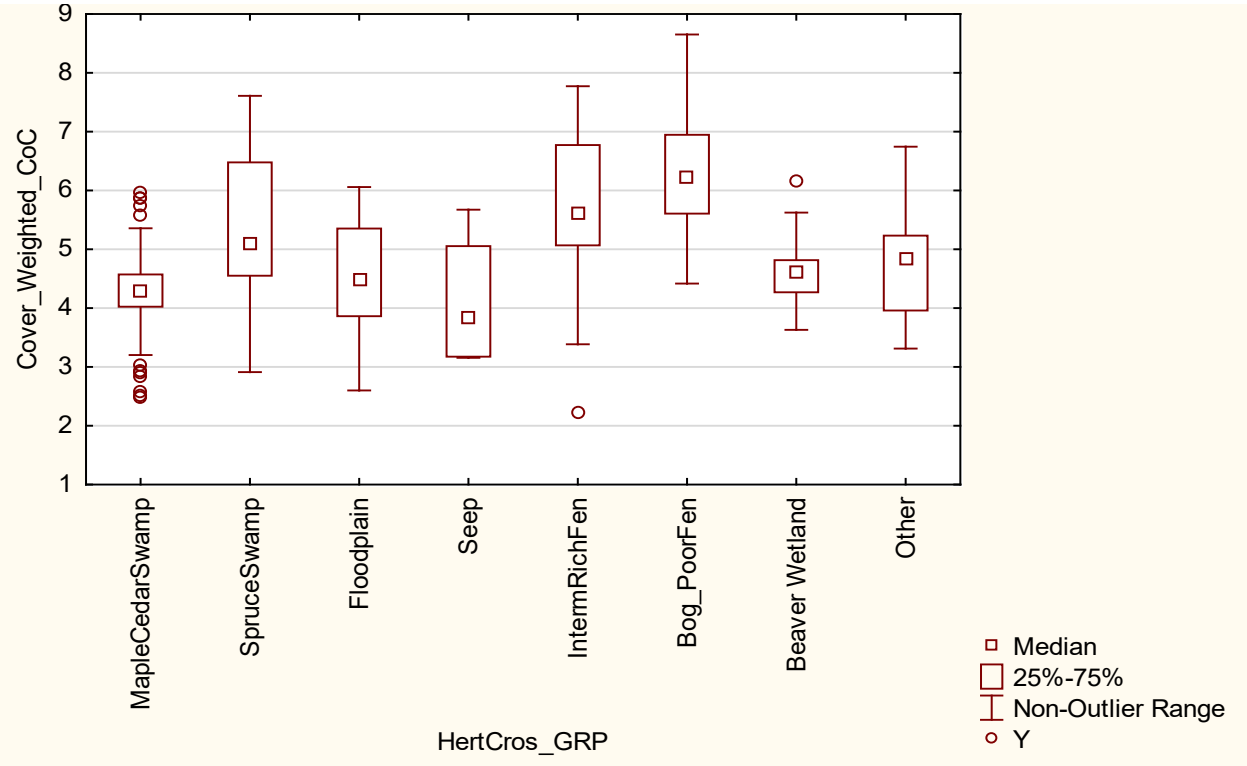
Appendix B.


Box Plot of RelImpNative grouped by HertCros_GRP
VT_Wetlands_MetricsEnviron 81v*1891c
Include condition: Reference_Tt = 'Ref'
RelImpNative
105
100
95
90
85
80
75
70
65
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y
Y

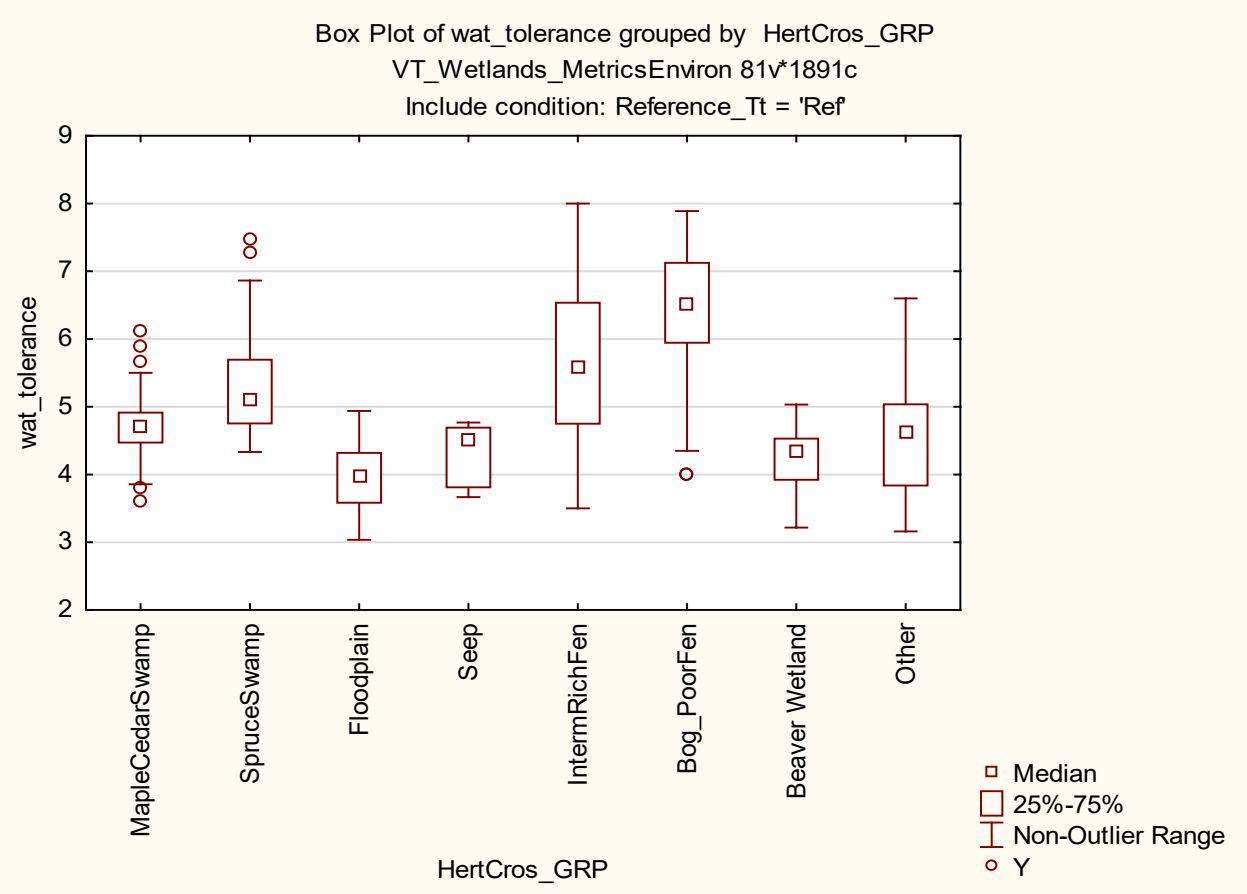

RelImpSenstv710
120
100
80
60
40
20
0
-20
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y

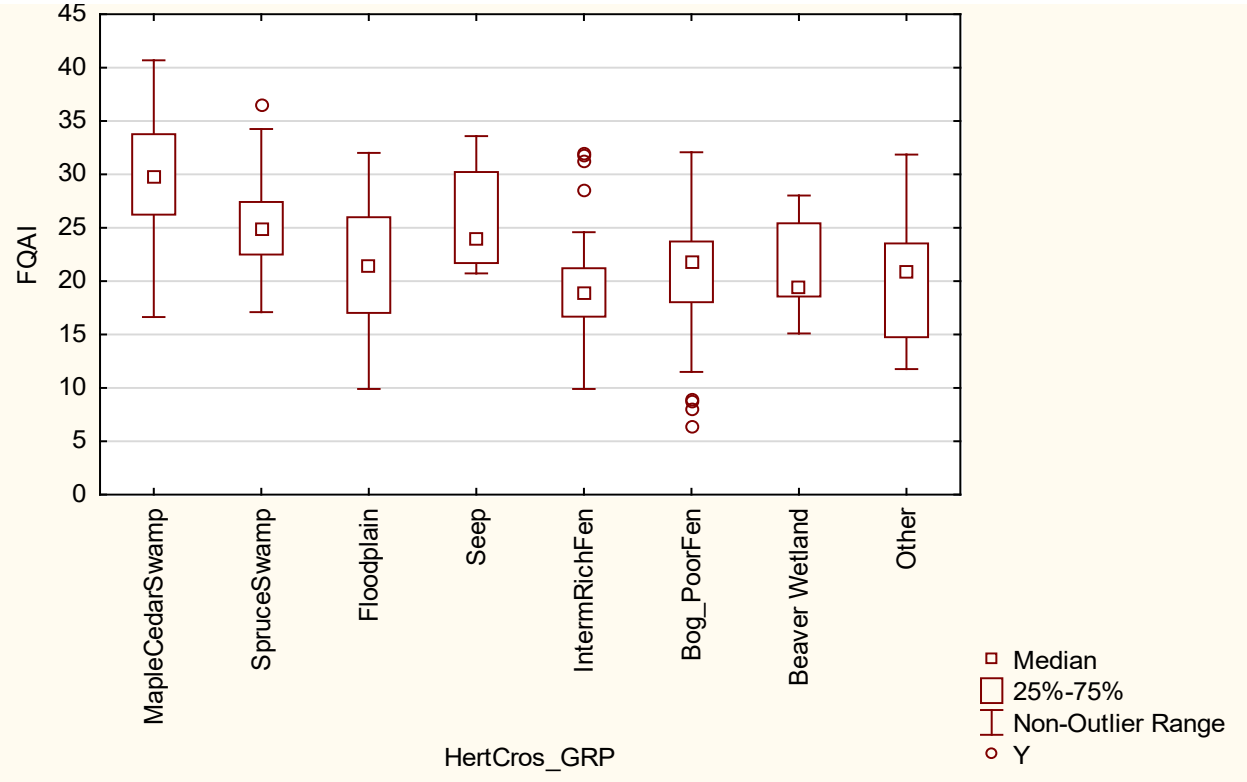
Appendix B.


Box Plot of wac_tolerance grouped by HertCros_GRP
VT_Wetlands_MetricsEnviron 81v*1891c
Include condition: Reference_Tt = 'Ref'
wac_tolerance
9
8
7
6
5
4
3
2
1
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y

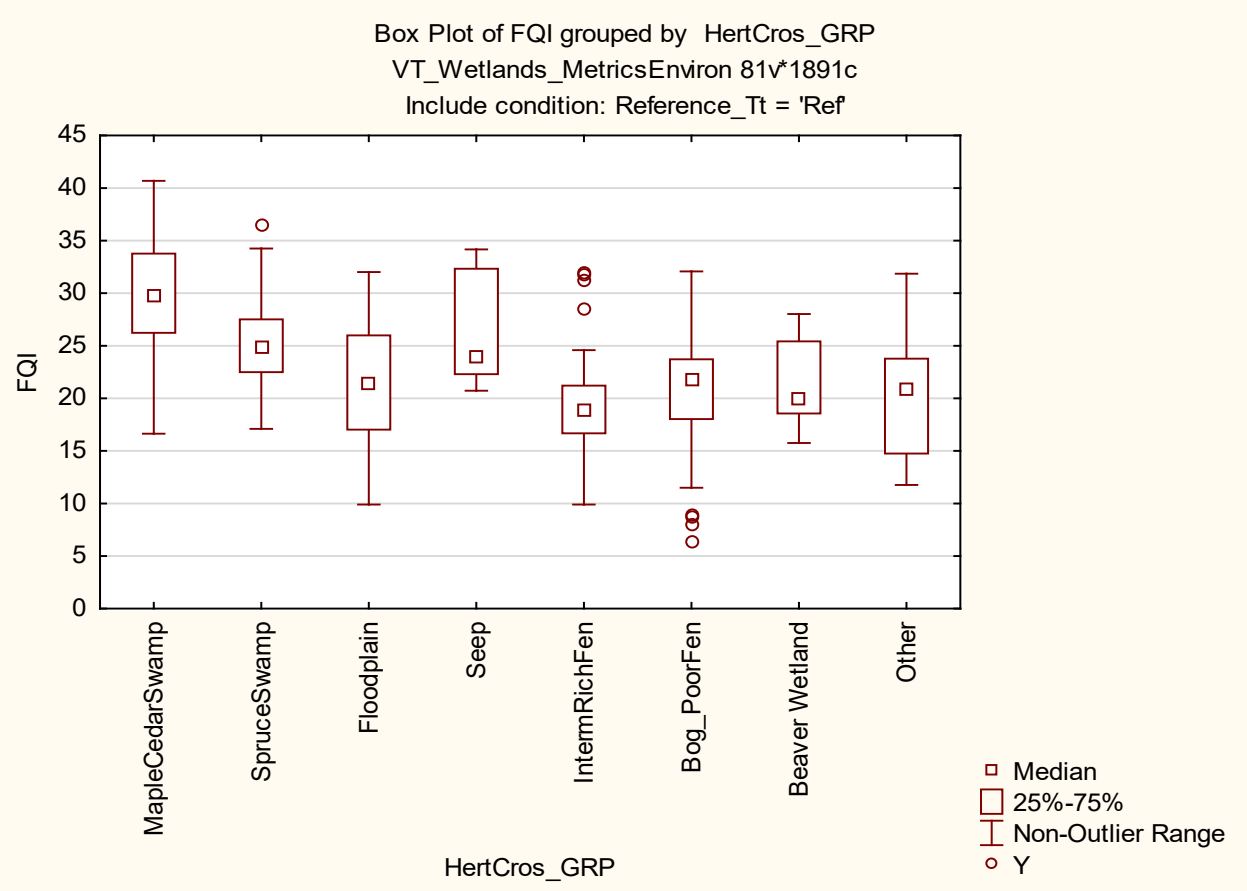

Cover_Weighted_CoC
9
8
7
6
5
4
3
2
1
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y

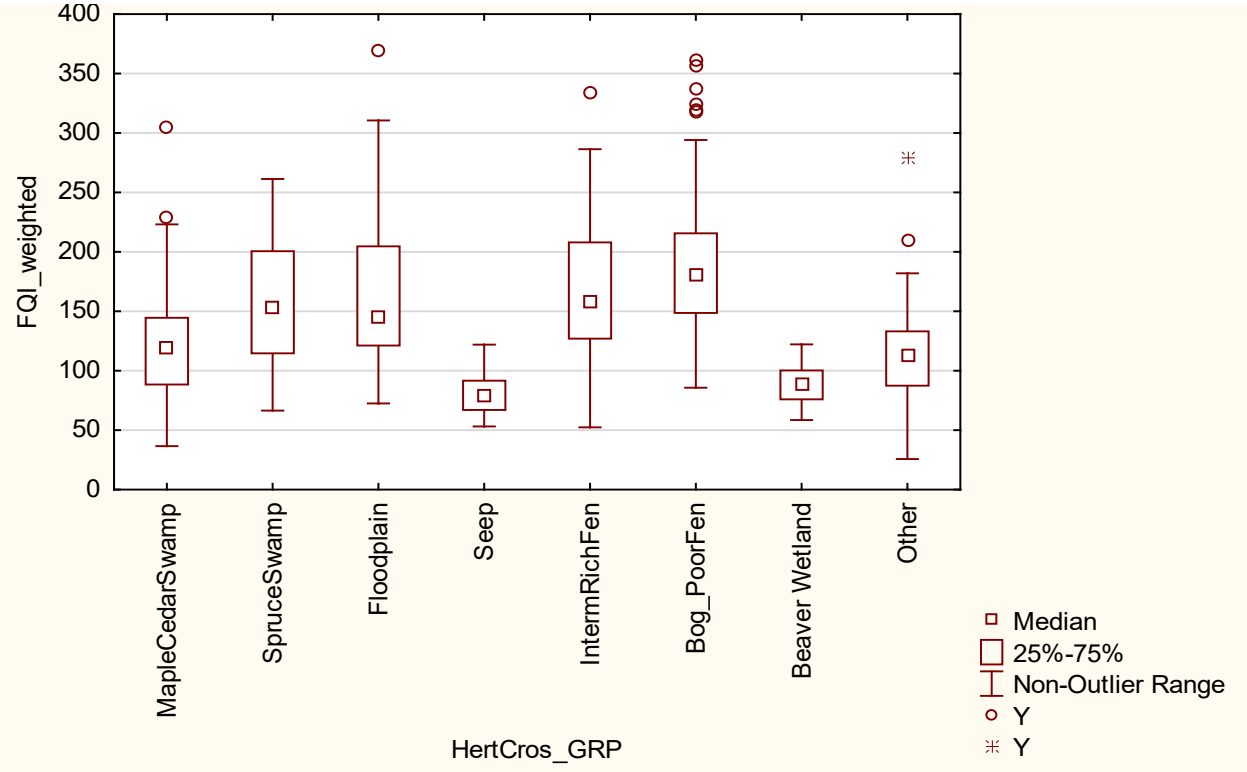
Appendix B.


Box Plot of wat_tolerance grouped by HertCros_GRP
VT_Wetlands_MetricsEnviron 81v*1891c
Include condition: Reference_Tt = 'Ref'
wat_tolerance
9
8
7
6
5
4
3
2
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y

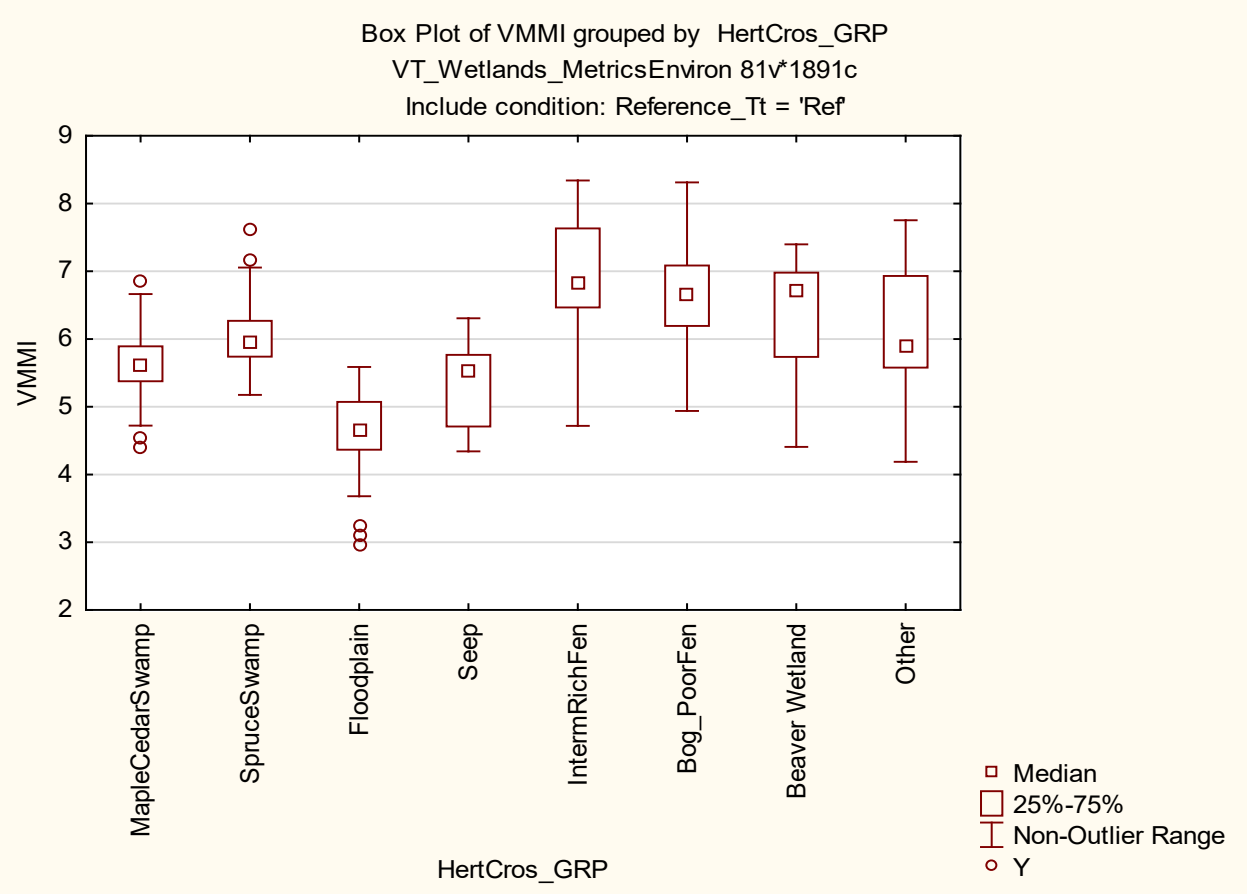

FQAI
45
40
35
30
25
20
15
10
5
0
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y

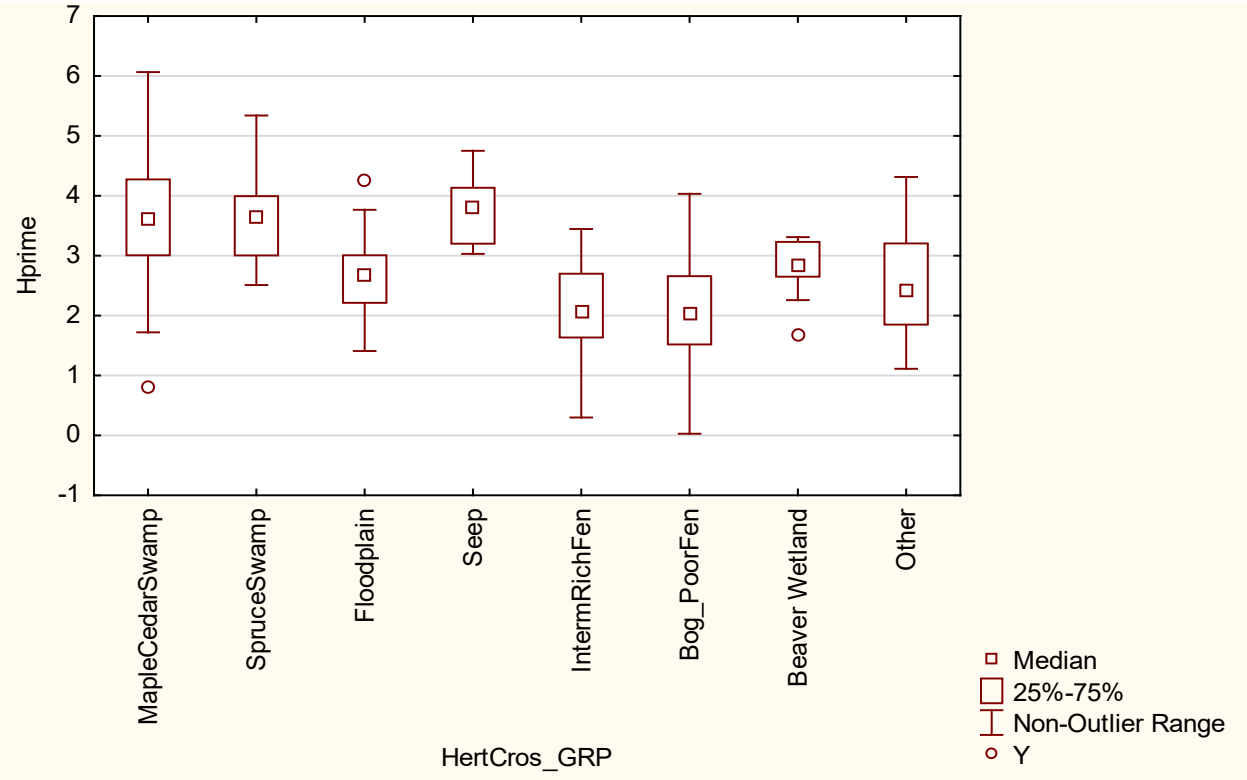
Appendix B.


Box Plot of FQI grouped by HertCros_GRP
VT_Wetlands_MetricsEnviron 81v*1891c
Include condition: Reference_Tt = 'Ref'
FQI
45
40
35
30
25
20
15
10
5
0
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y

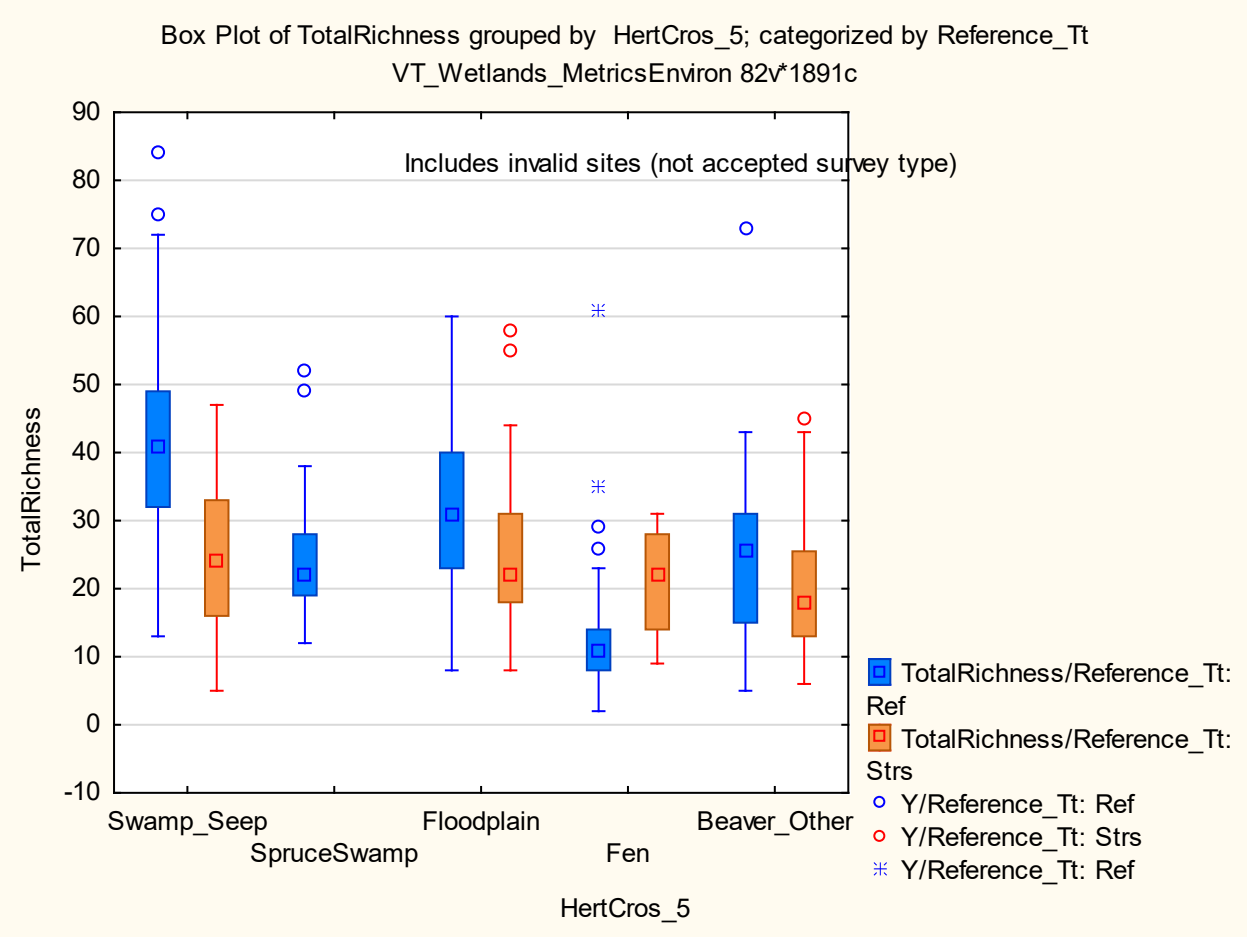

FQI_weighted
400
350
300
250
200
150
100
50
0
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y
Y

Appendix B.

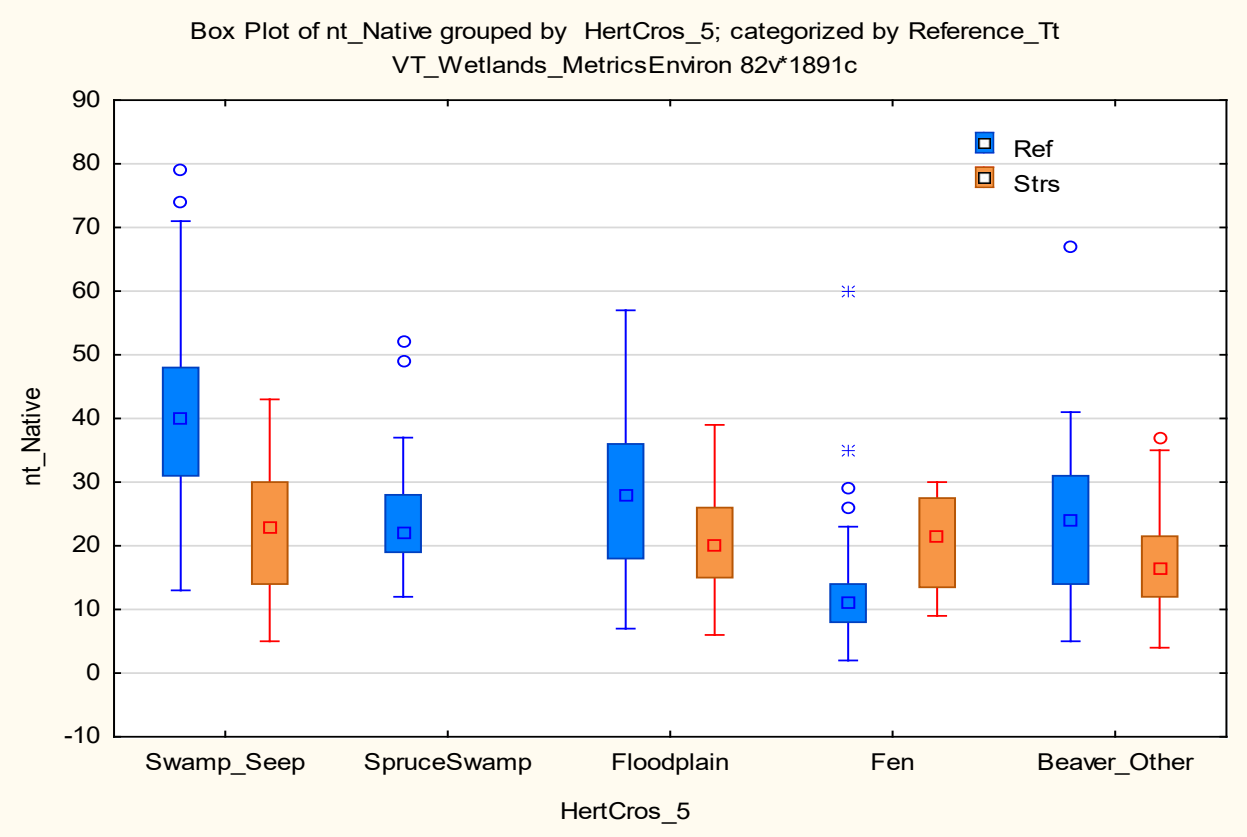

Box Plot of VMMI grouped by HertCros_GRP
VT_Wetlands_MetricsEnviron 81v*1891c
Include condition: Reference_Tt = 'Ref'
VMMI
9
8
7
6
5
4
3
2
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y

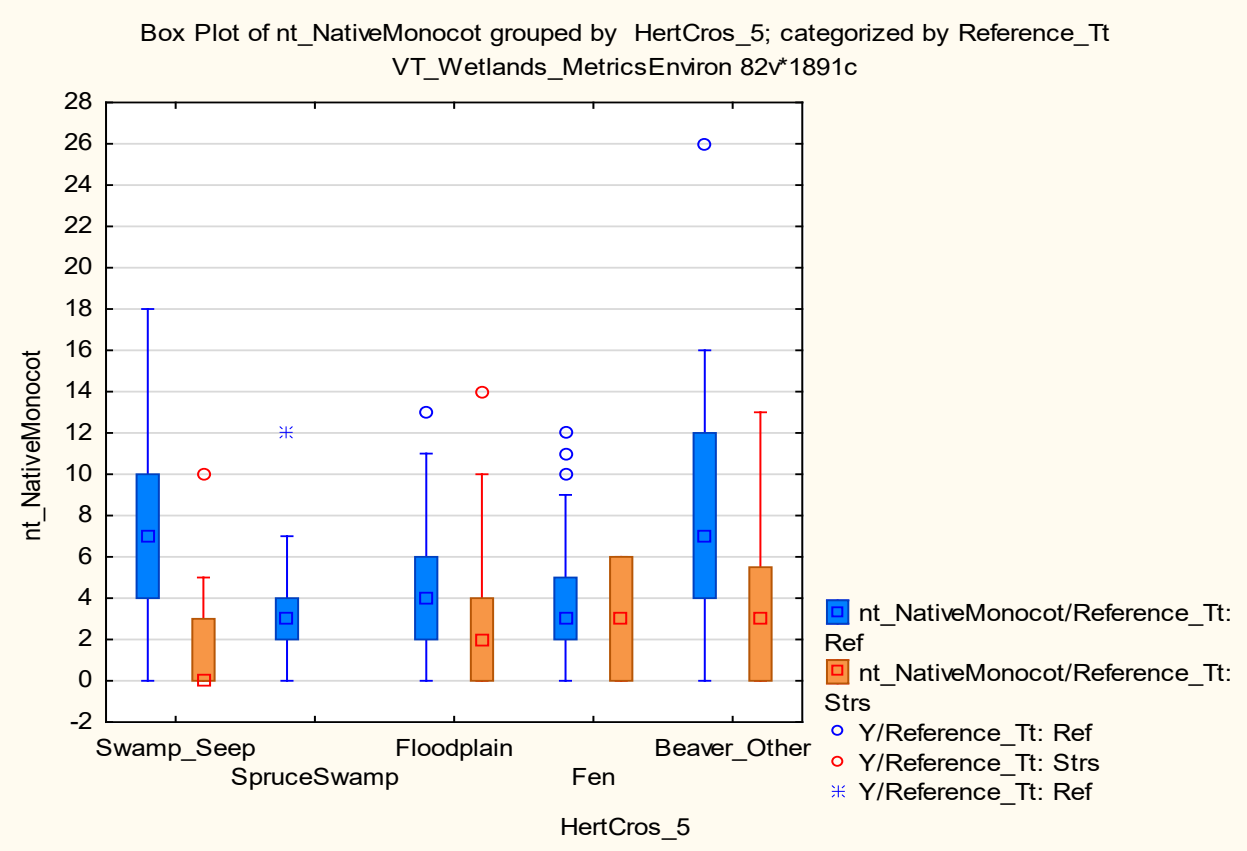

Hprime
7
6
5
4
3
2
1
0
-1
MapleCedarSwamp
SpruceSwamp
Floodplain
Seep
IntermRichFen
Bog_PoorFen
Beaver Wetland
Other
HertCros_GRP
Median
25%-75%
Non-Outlier Range
Y

Appendix C. Metric distributions in reference and stressed sites, by final/proposed site class.

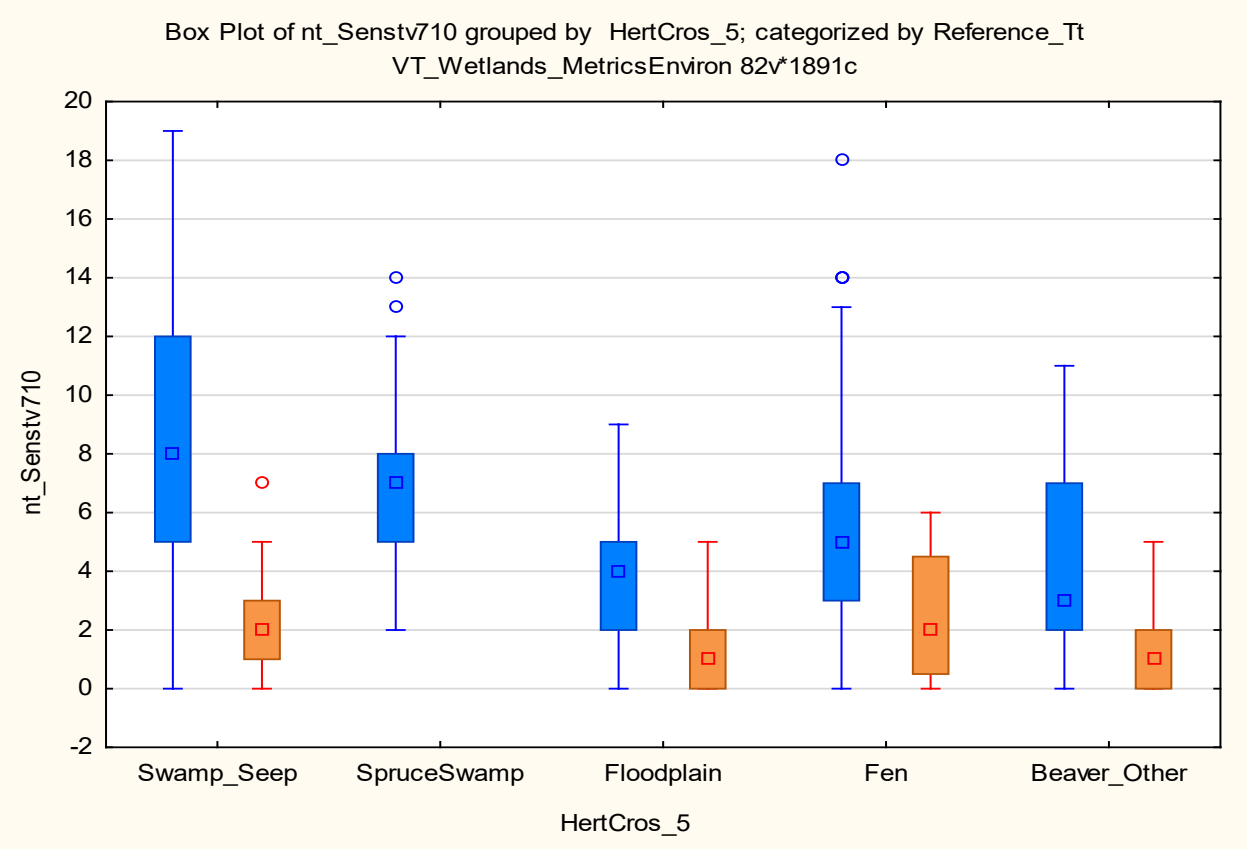


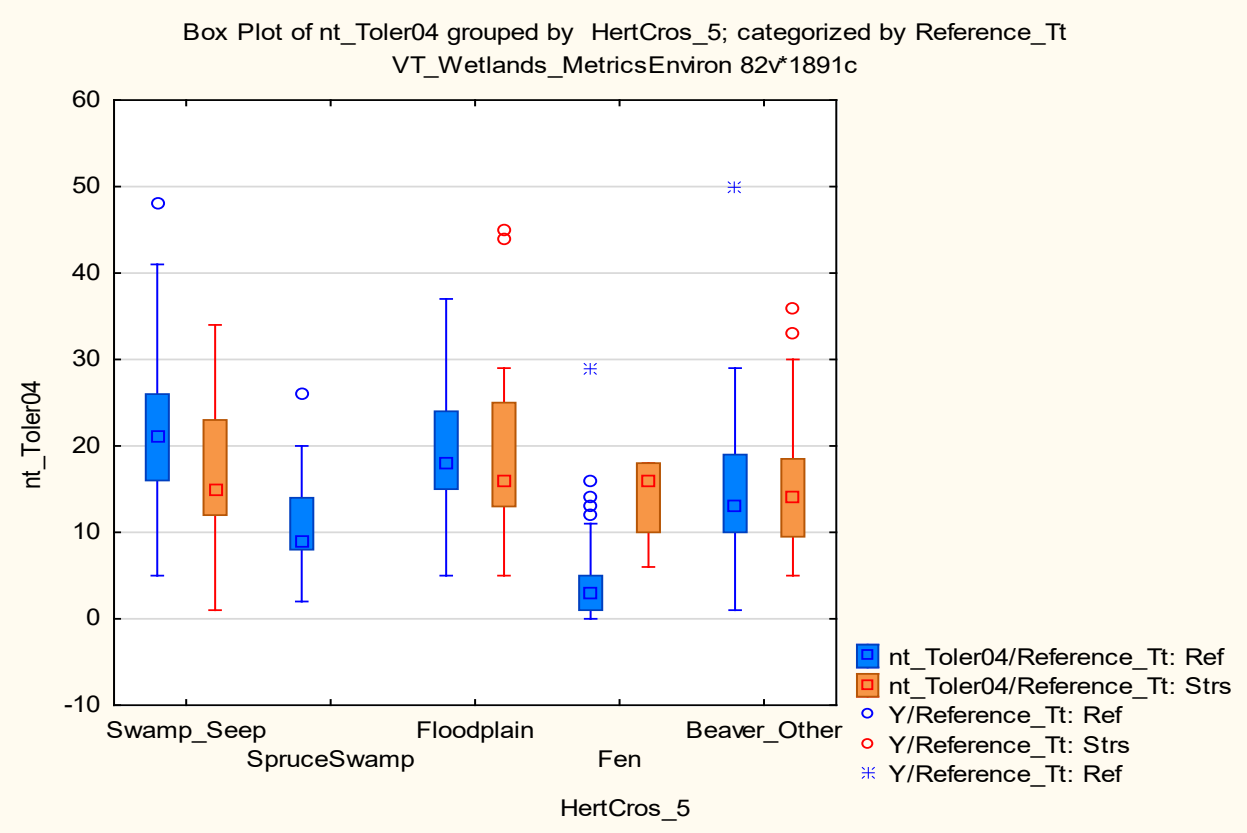
Appendix C.


Box Plot of nt_Native grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
nt_Native
90
80
70
60
50
40
30
20
10
0
-10
Ref
Strs
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5

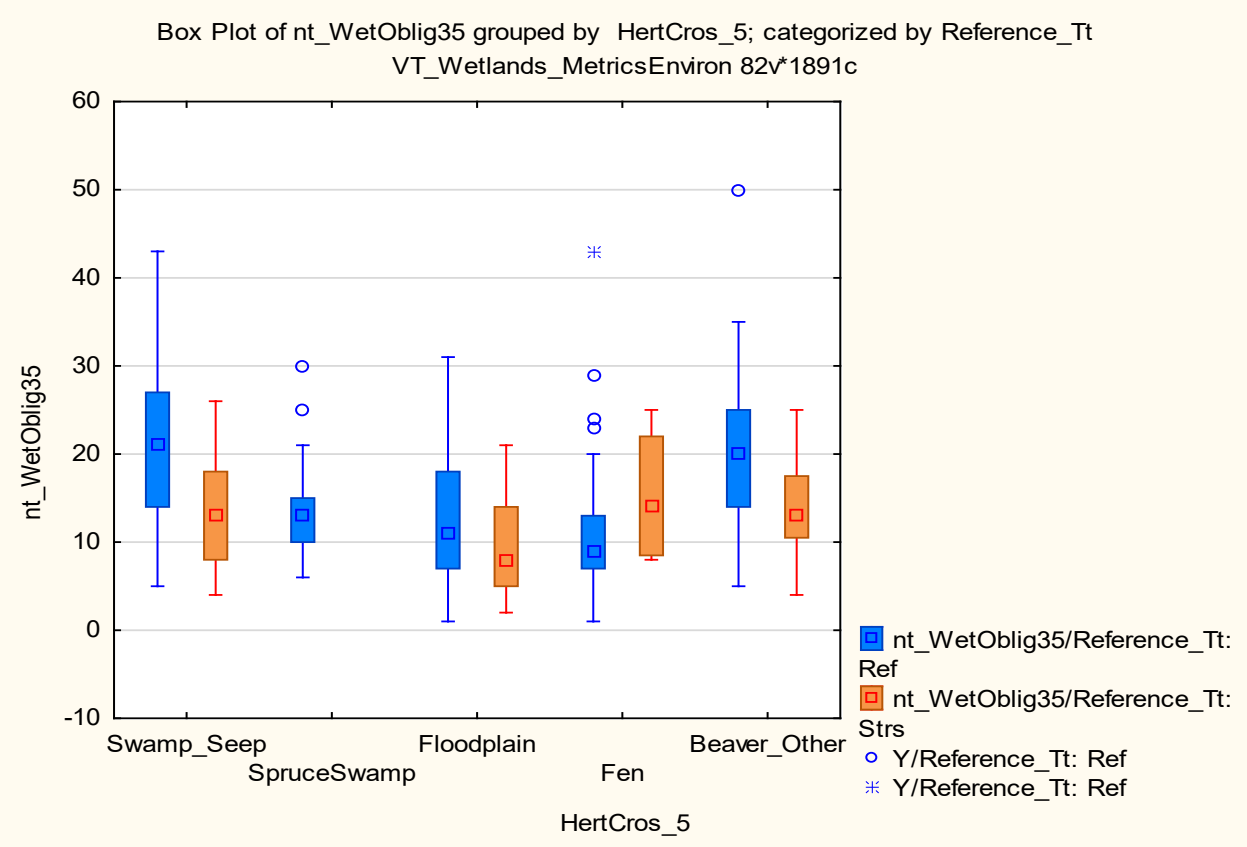

Box Plot of nt_NativeMonocot grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
nt_NativeMonocot
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
-2
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
nt_NativeMonocot/Reference_Tt: Ref
nt_NativeMonocot/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs
Y/Reference_Tt: Ref

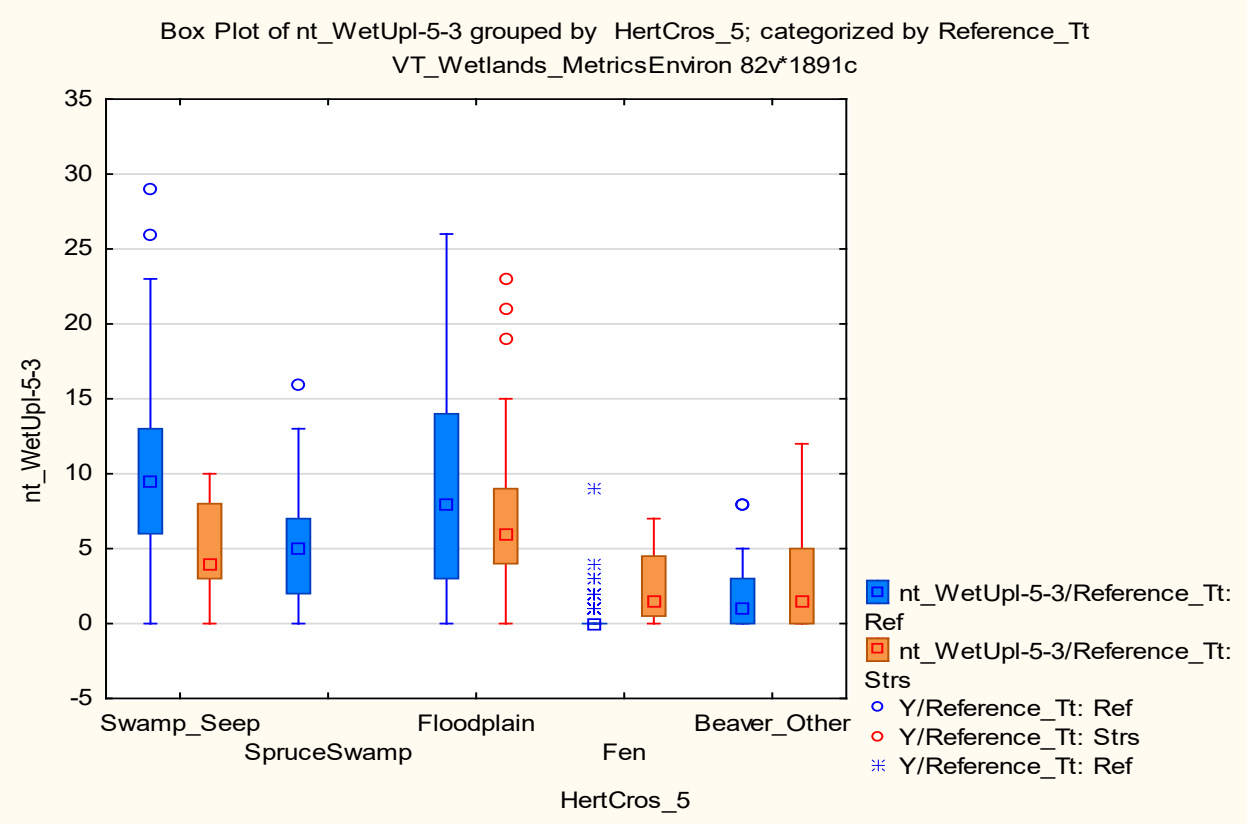
Appendix C.


Box Plot of nt_Senstv710 grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
nt_Senstv710
20
18
16
14
12
10
8
6
4
2
0
-2
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5

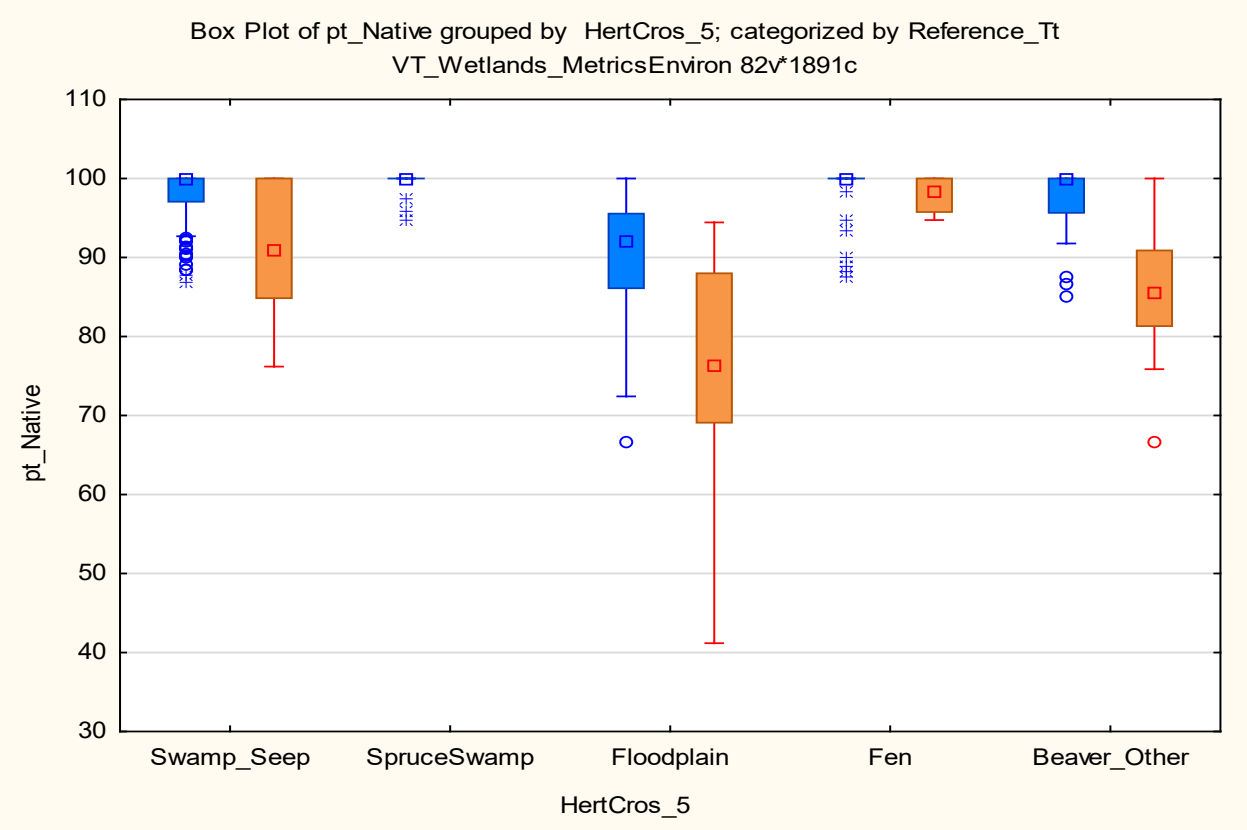

Box Plot of nt_Toler04 grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
nt_Toler04
60
50
40
30
20
10
0
-10
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
nt_Toler04/Reference_Tt: Ref
nt_Toler04/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs
Y/Reference_Tt: Ref

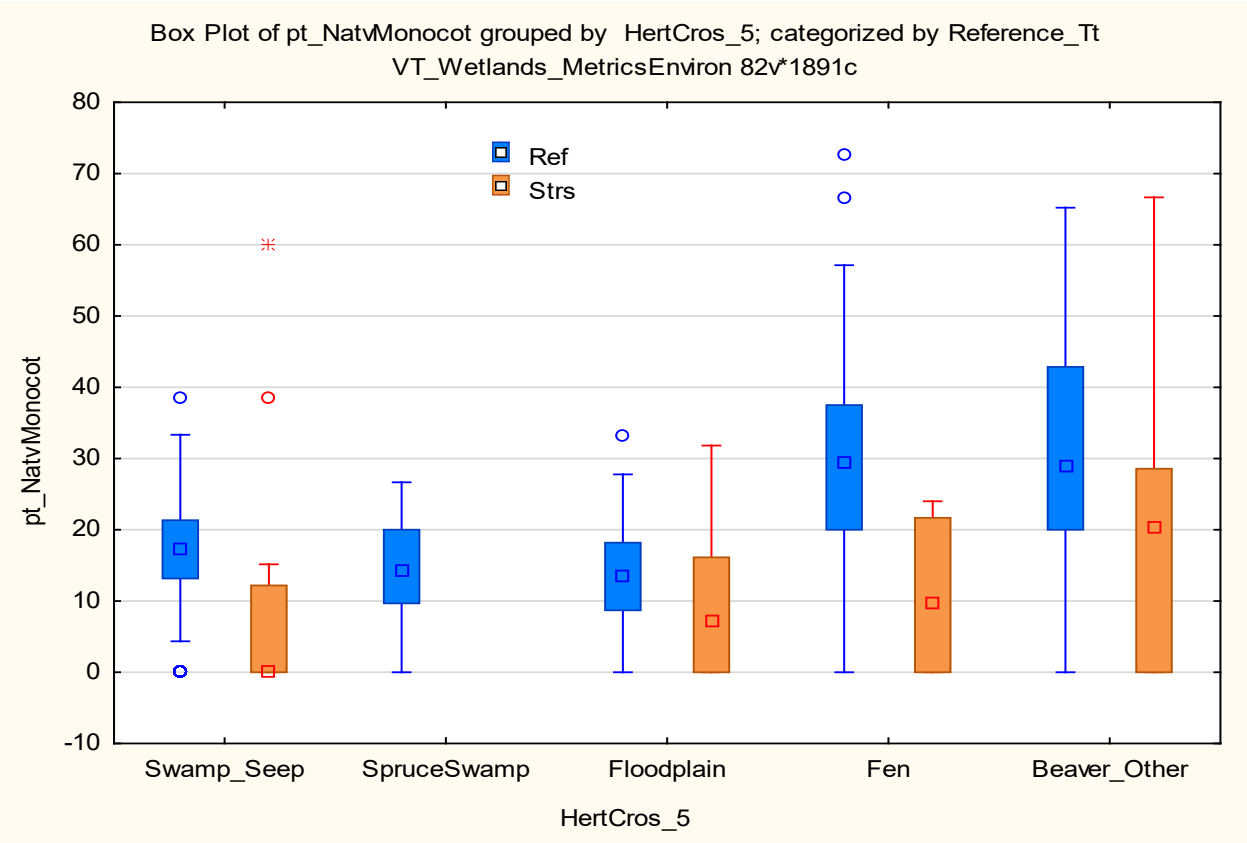
Appendix C.


Box Plot of nt_WetOblig35 grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
nt_WetOblig35
60
50
40
30
20
10
0
-10
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
nt_WetOblig35/Reference_Tt: Ref
nt_WetOblig35/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Ref

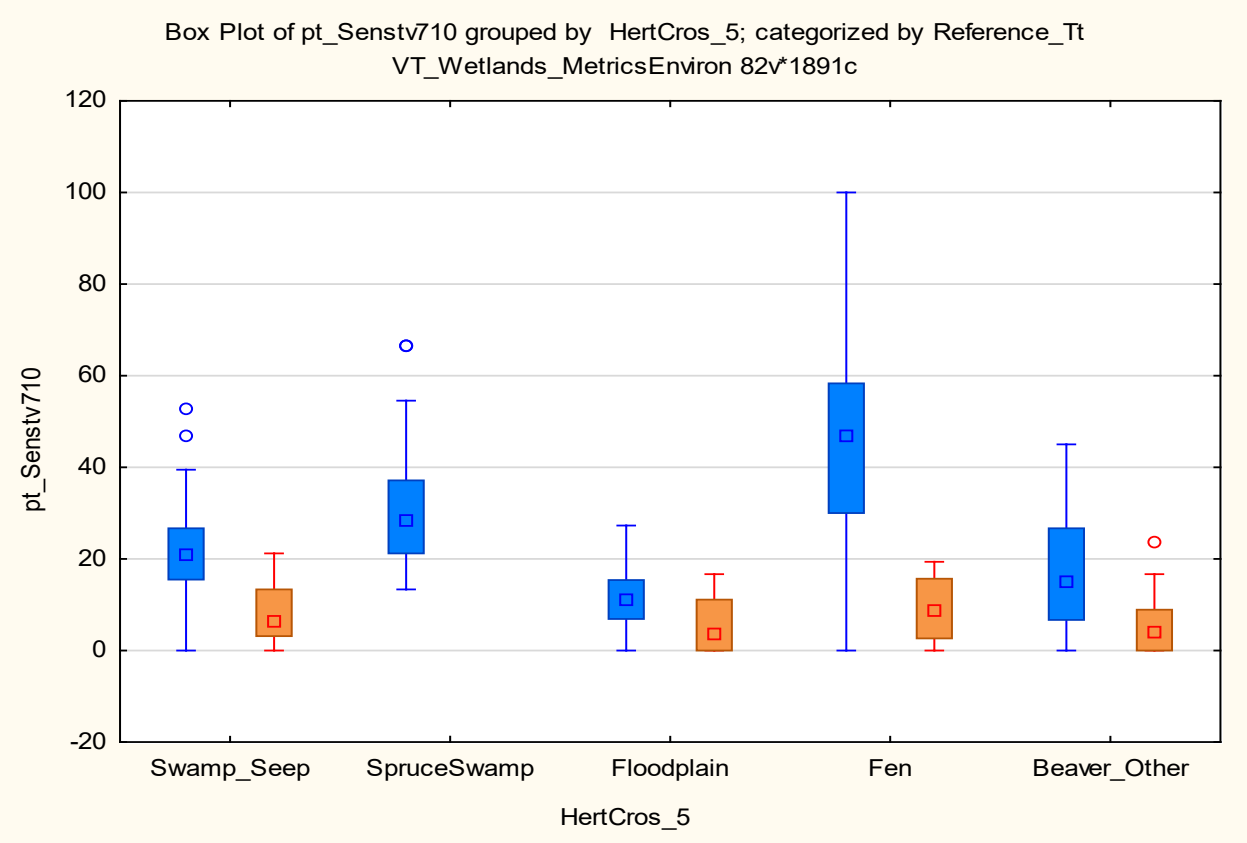

Box Plot of nt_WetUpl-5-3 grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
nt_WetUpl-5-3
35
30
25
20
15
10
5
0
-5
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
nt_WetUpl-5-3/Reference_Tt: Ref
nt_WetUpl-5-3/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs
Y/Reference_Tt: Ref

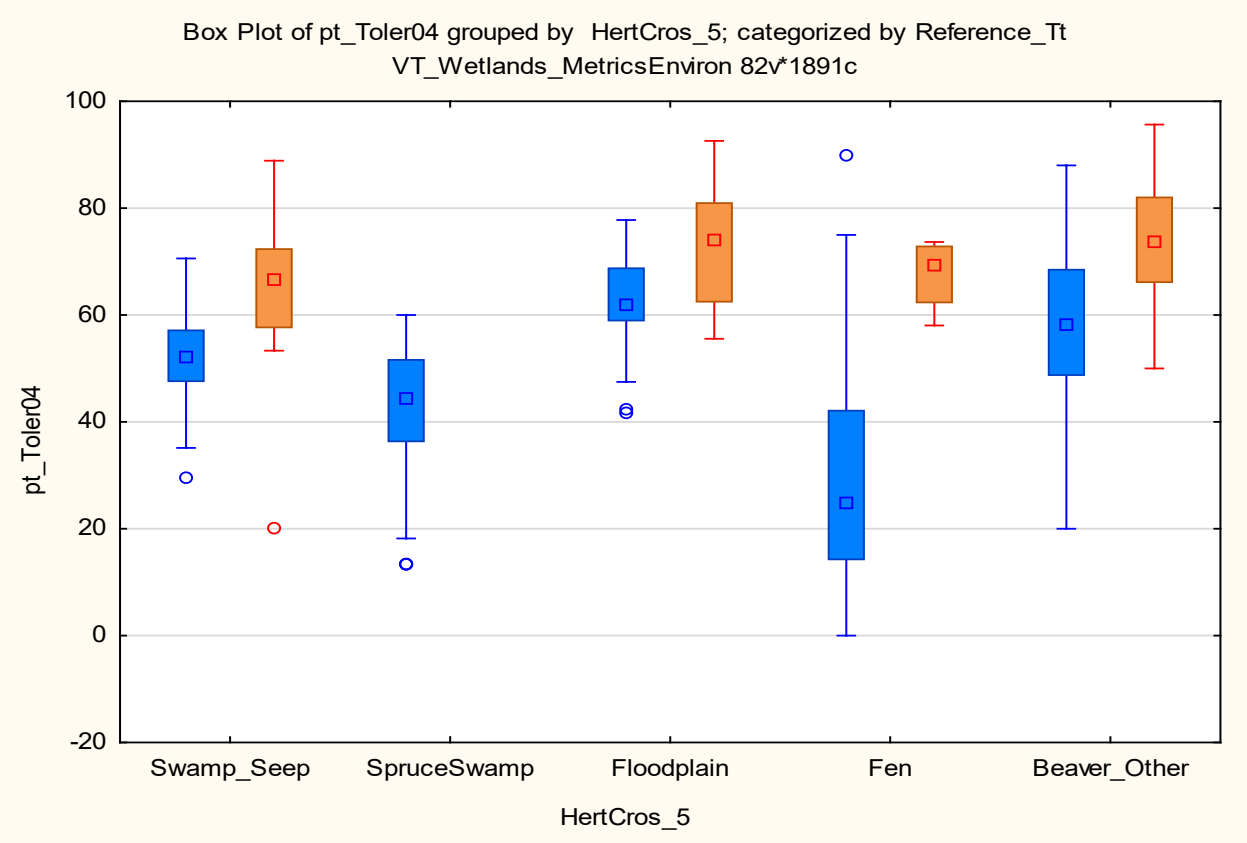
Appendix C.


Box Plot of pt_Native grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
pt_Native
110
100
90
80
70
60
50
40
30
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5

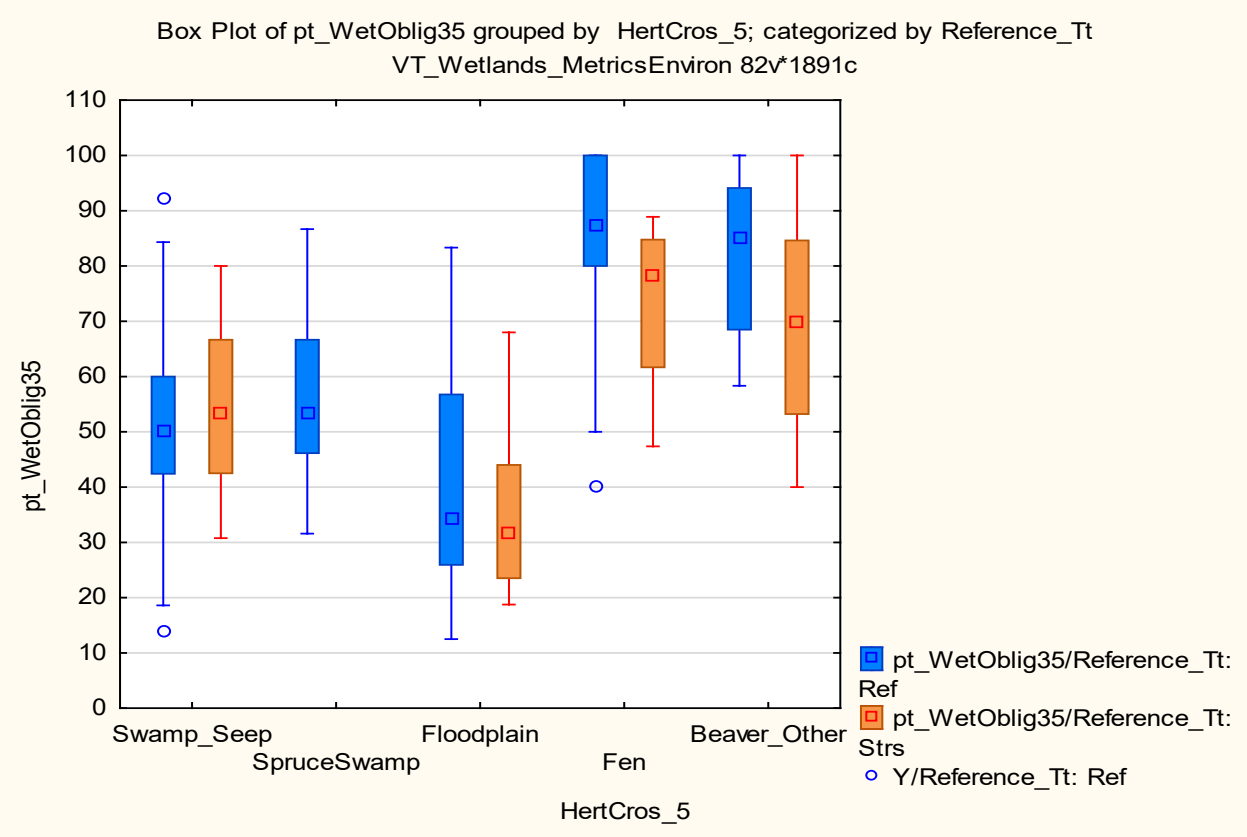

Box Plot of pt_NatvMonocot grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
Ref
Strs
pt_NatvMonocot
80
70
60
50
40
30
20
10
0
-10
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5

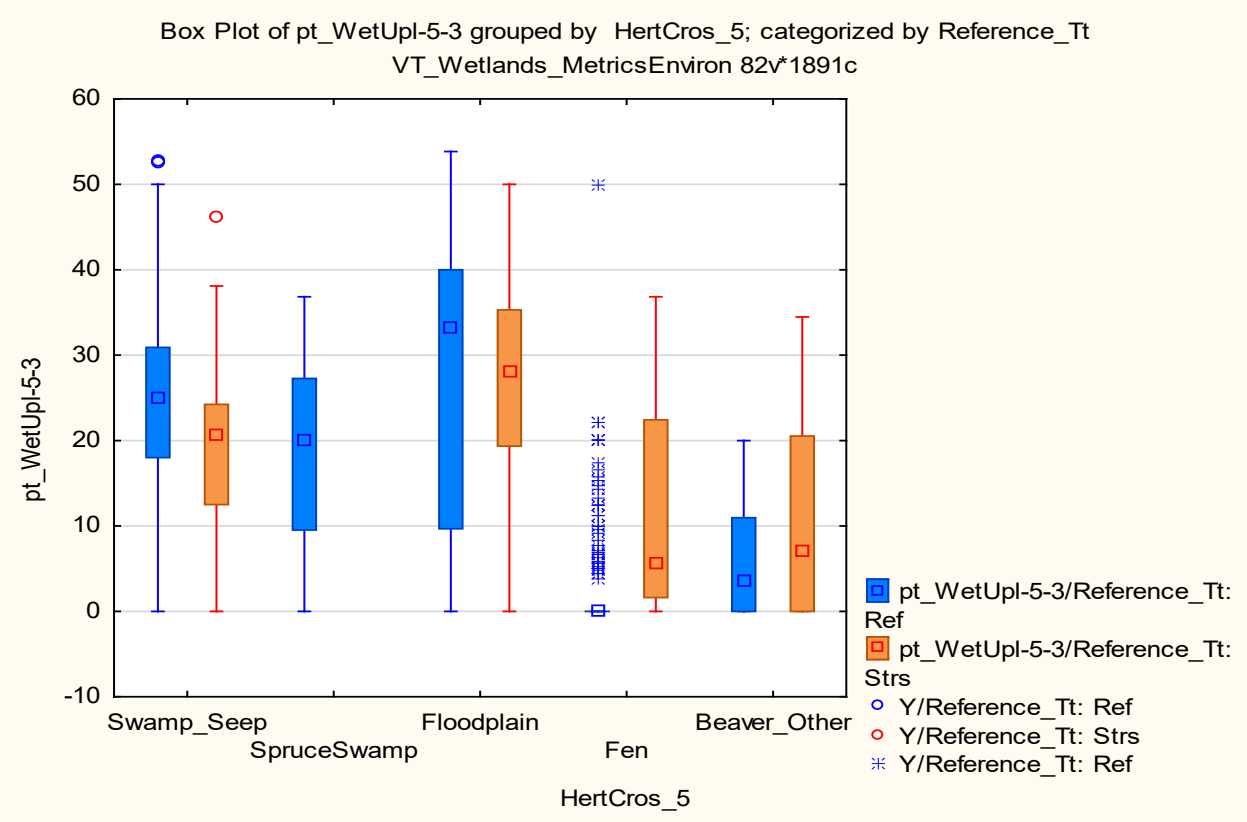
Appendix C.


Box Plot of pt_Senstv710 grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
pt_Senstv710
120
100
80
60
40
20
0
-20
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5

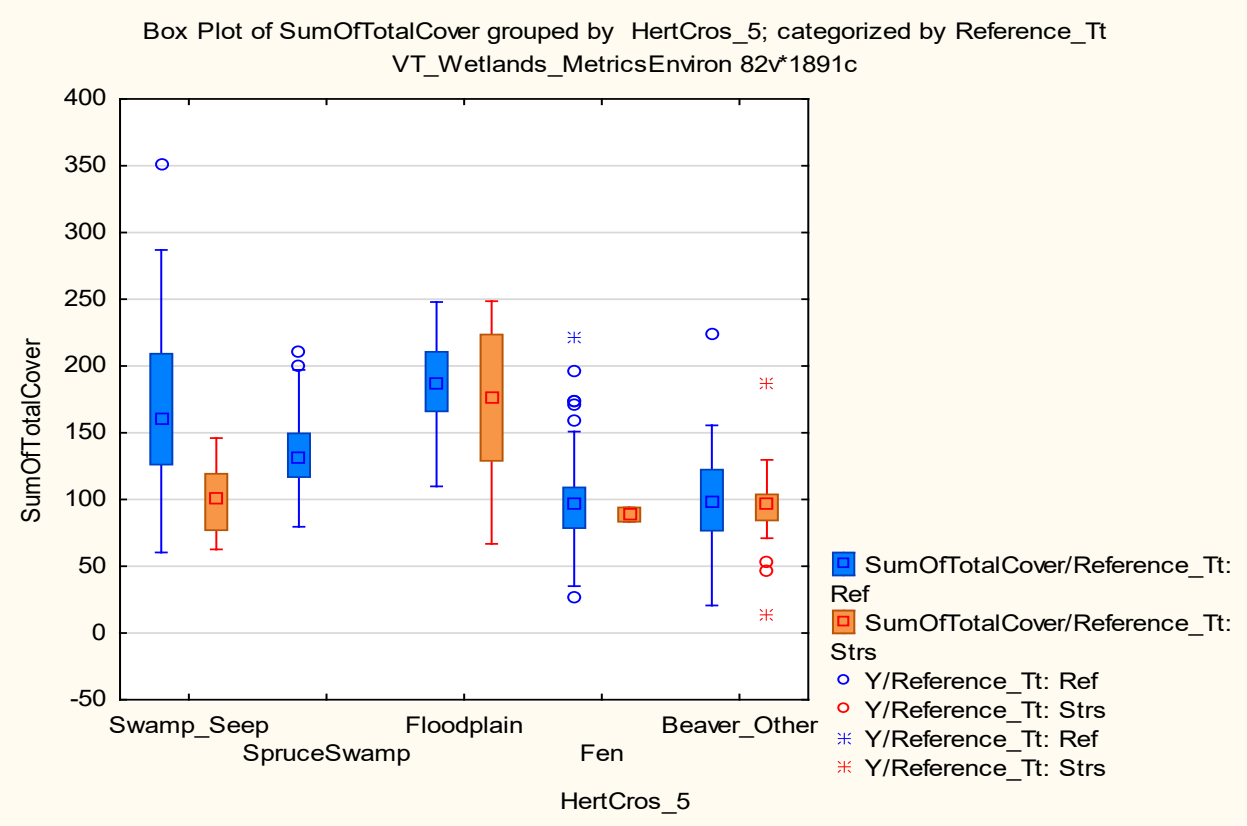

Box Plot of pt_Toler04 grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
pt_Toler04
100
80
60
40
20
0
-20
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5

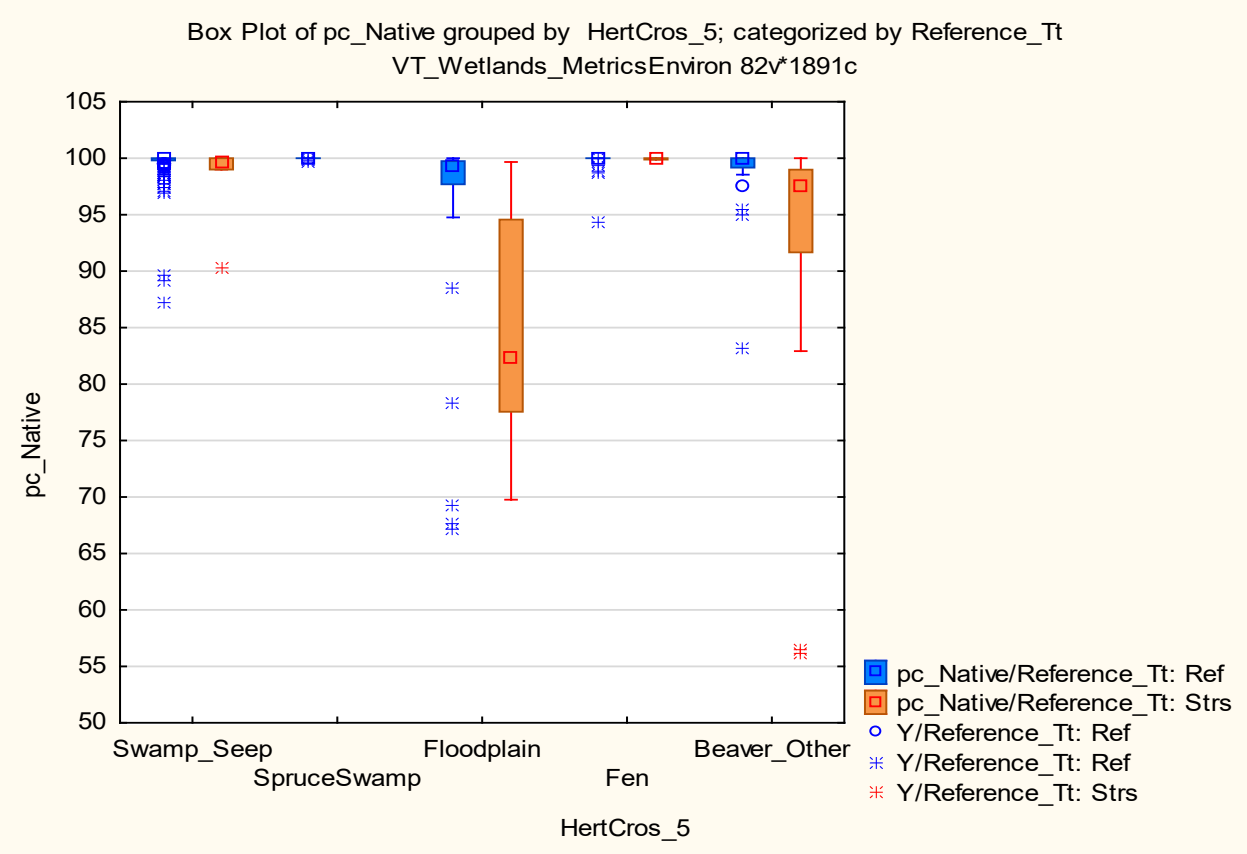
Appendix C.


Box Plot of pt_WetOblig35 grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
pt_WetOblig35
110
100
90
80
70
60
50
40
30
20
10
0
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
pt_WetOblig35/Reference_Tt: Ref
pt_WetOblig35/Reference_Tt: Strs
Y/Reference_Tt: Ref

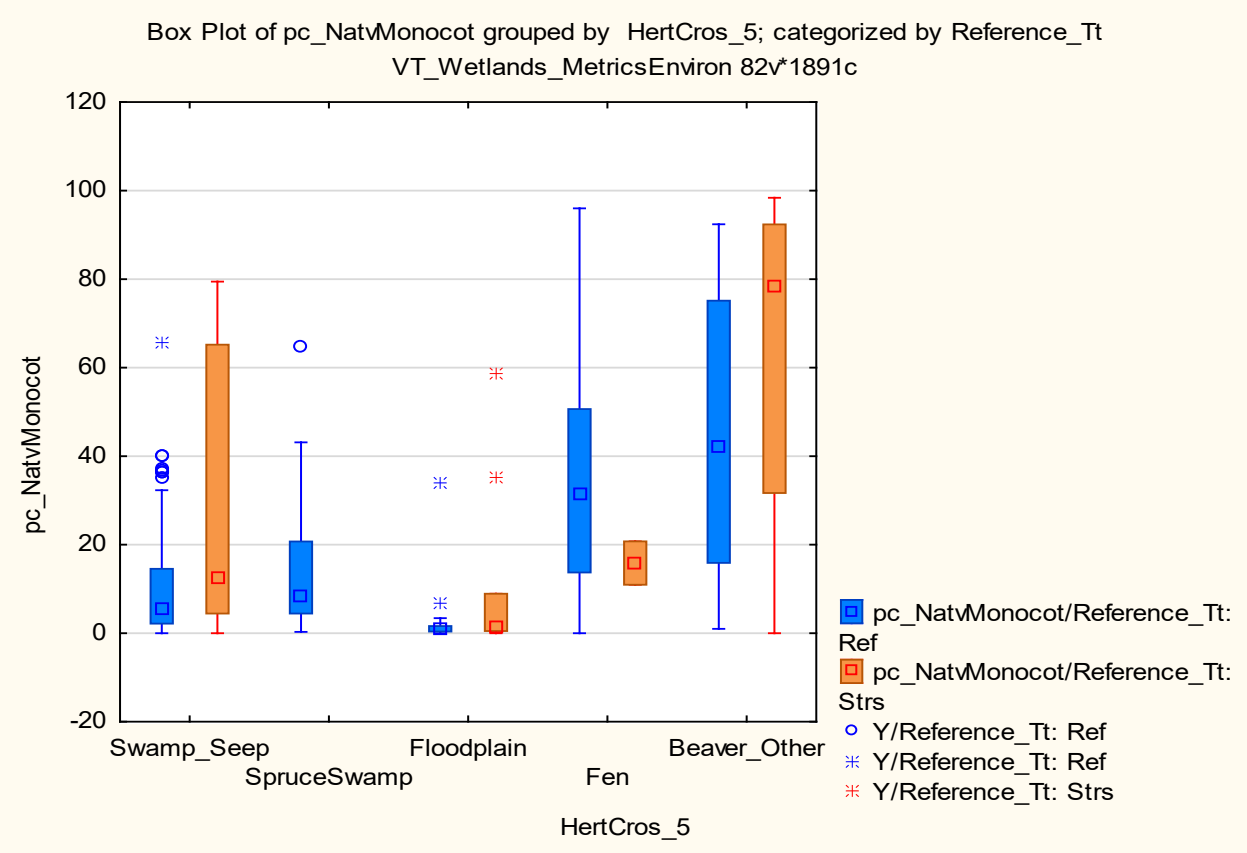

Box Plot of pt_WetUpl-5-3 grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
pt_WetUpl-5-3
60
50
40
30
20
10
0
-10
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
pt_WetUpl-5-3/Reference_Tt: Ref
pt_WetUpl-5-3/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs
Y/Reference_Tt: Ref

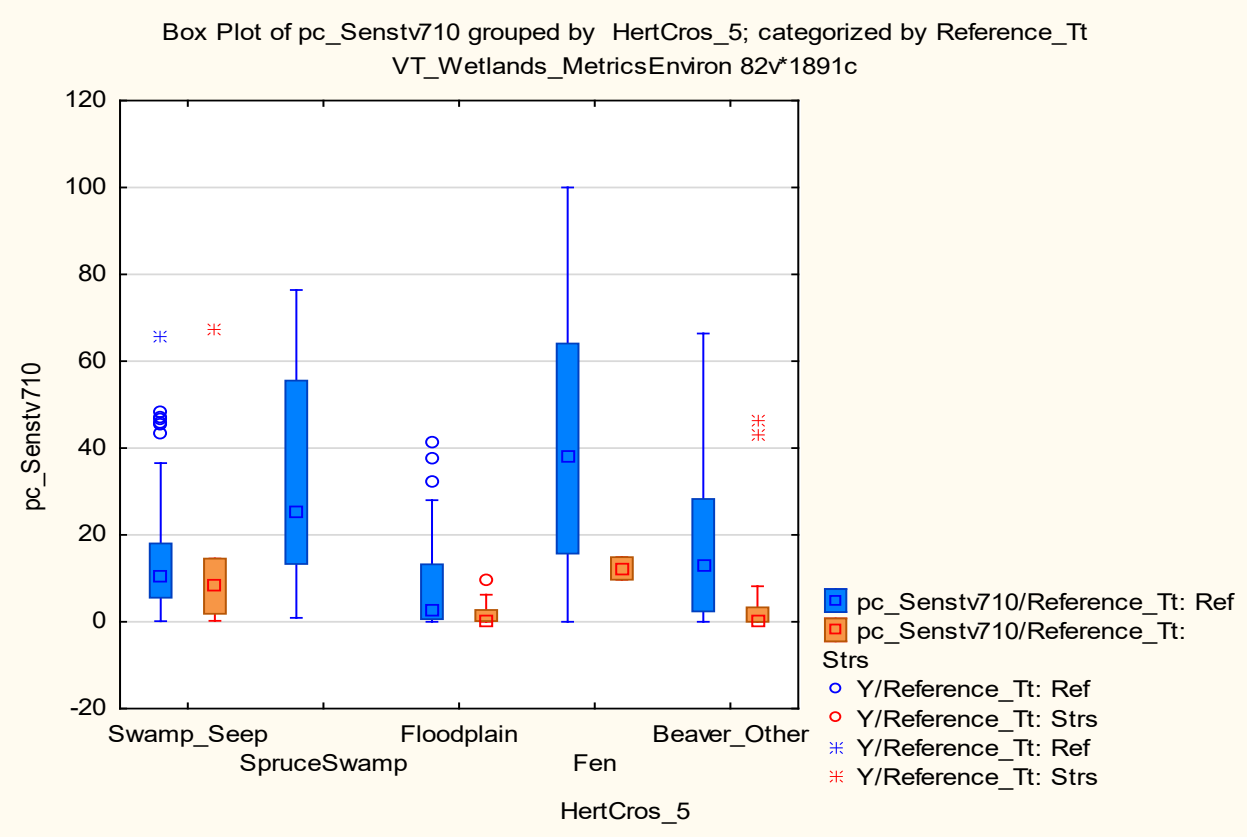
Appendix C.


Box Plot of SumOfTotalCover grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
SumOfTotalCover
400
350
300
250
200
150
100
50
0
-50
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
SumOfTotalCover/Reference_Tt: Ref
SumOfTotalCover/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs

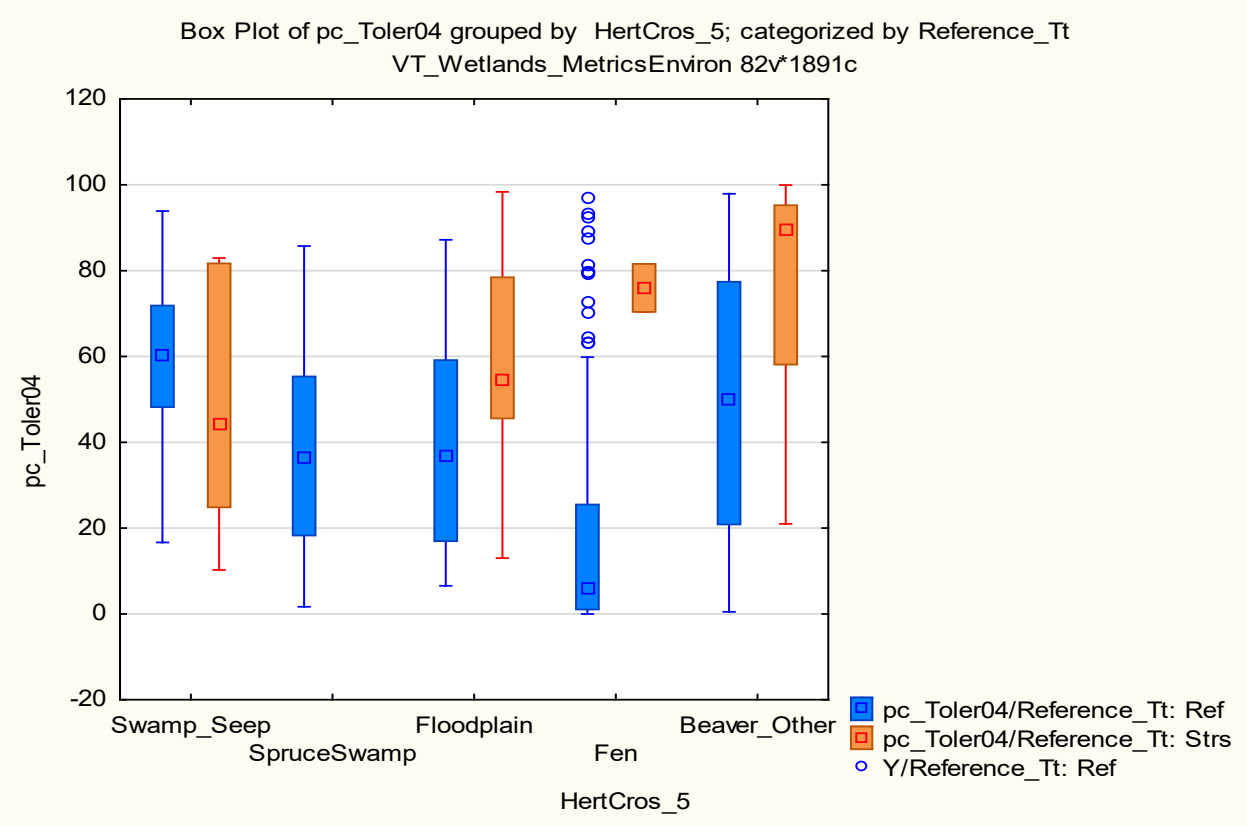

Box Plot of pc_Native grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
pc_Native
105
100
95
90
85
80
75
70
65
60
55
50
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
pc_Native/Reference_Tt: Ref
pc_Native/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs

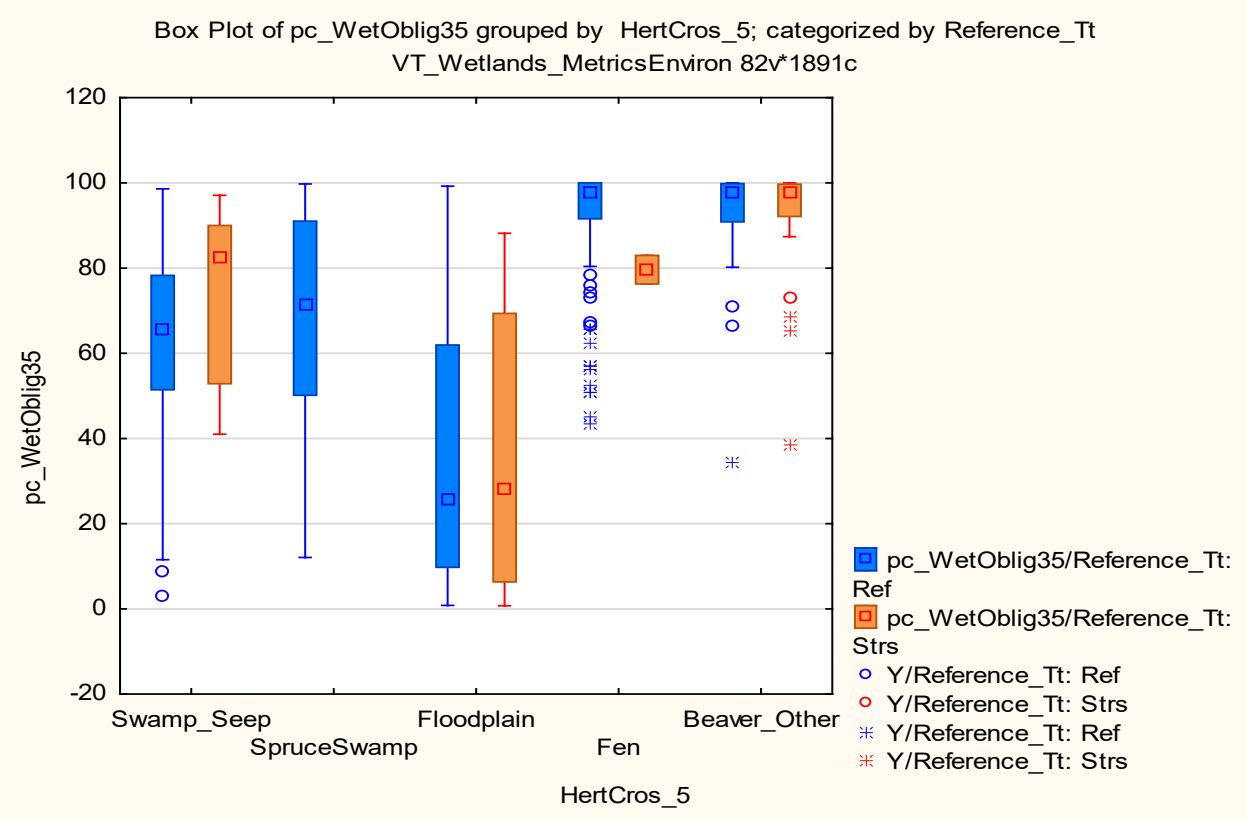
Appendix C.


Box Plot of pc_NatvMonocot grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
pc_NatvMonocot
120
100
80
60
40
20
0
-20
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
pc_NatvMonocot/Reference_Tt: Ref
pc_NatvMonocot/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs

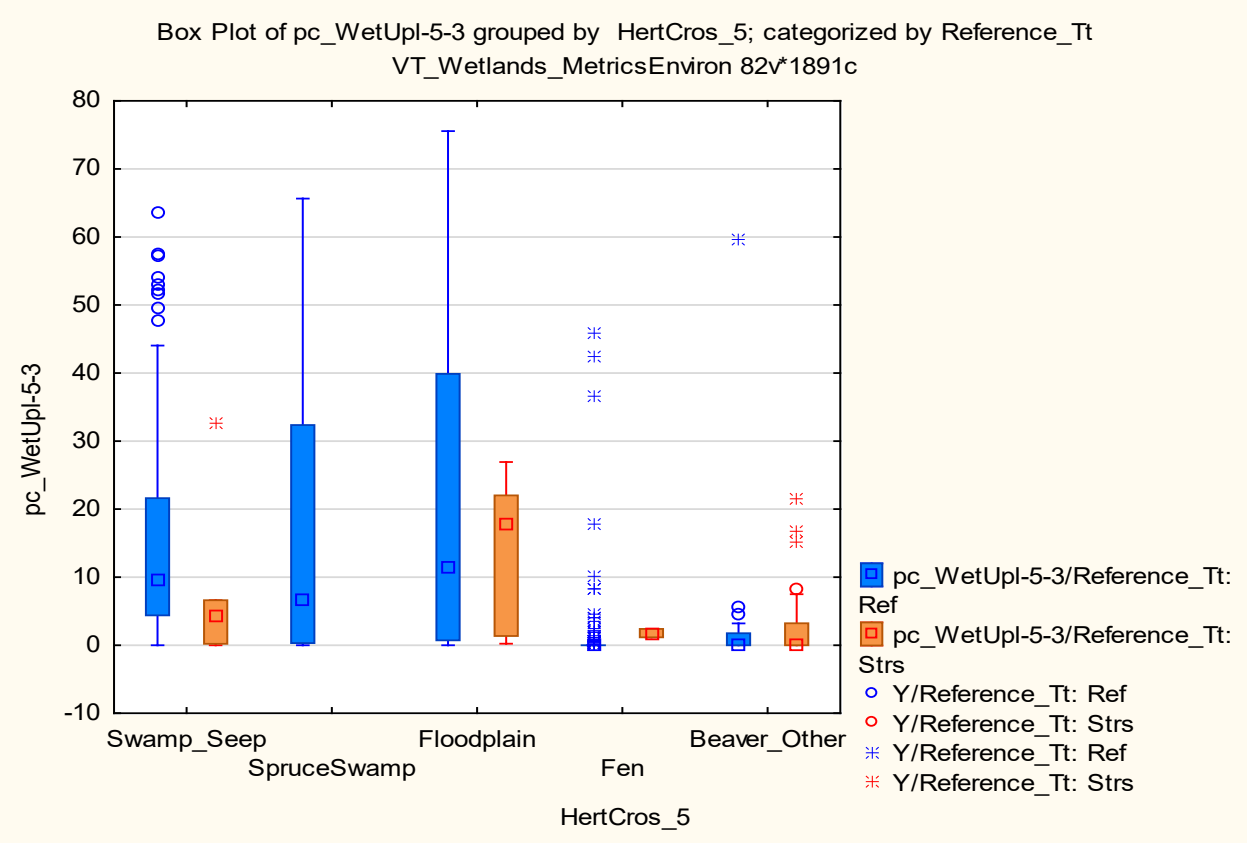

Box Plot of pc_Senstv710 grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
pc_Senstv710
120
100
80
60
40
20
0
-20
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
pc_Senstv710/Reference_Tt: Ref
pc_Senstv710/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs

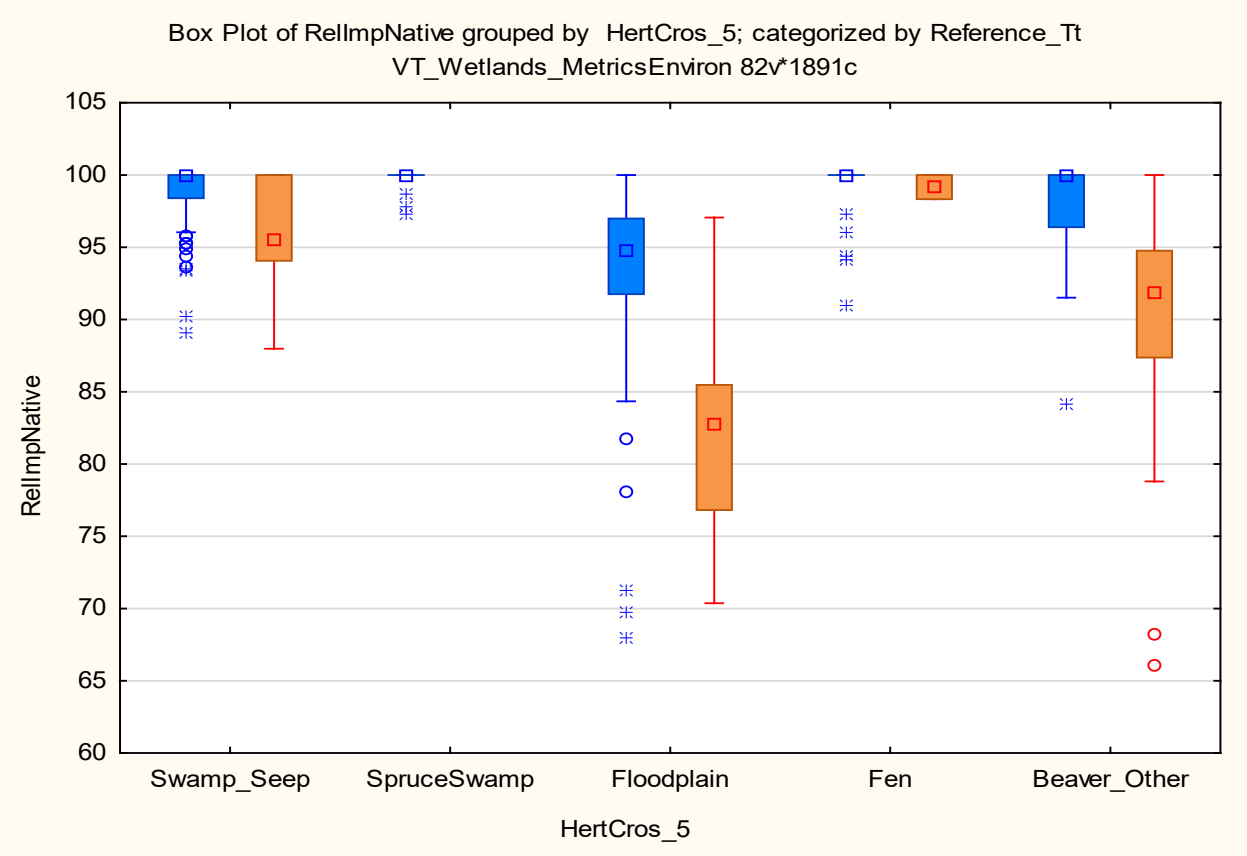
Appendix C.


Box Plot of pc_Toler04 grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
pc_Toler04
120
100
80
60
40
20
0
-20
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
pc_Toler04/Reference_Tt: Ref
pc_Toler04/Reference_Tt: Strs
Y/Reference_Tt: Ref

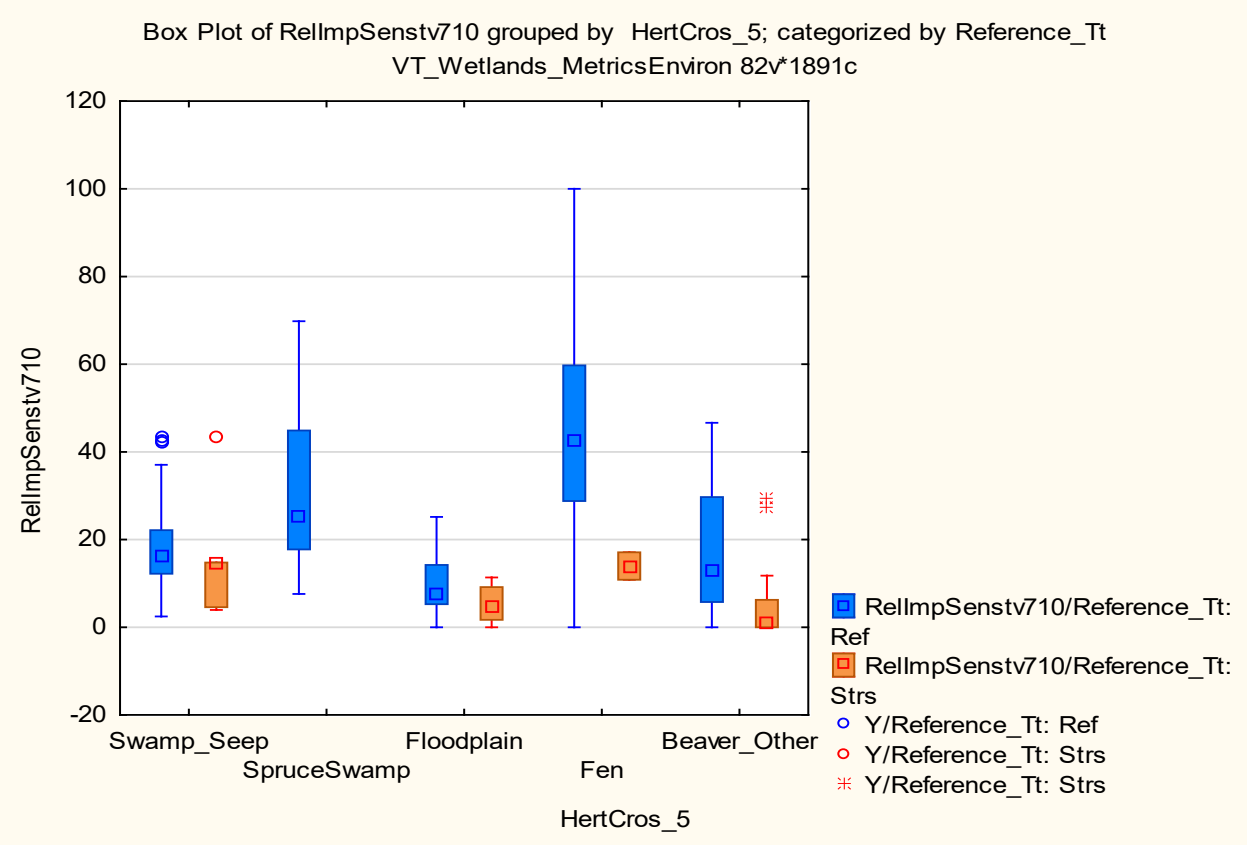

Box Plot of pc_WetOblig35 grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
pc_WetOblig35
120
100
80
60
40
20
0
-20
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
pc_WetOblig35/Reference_Tt: Ref
pc_WetOblig35/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs

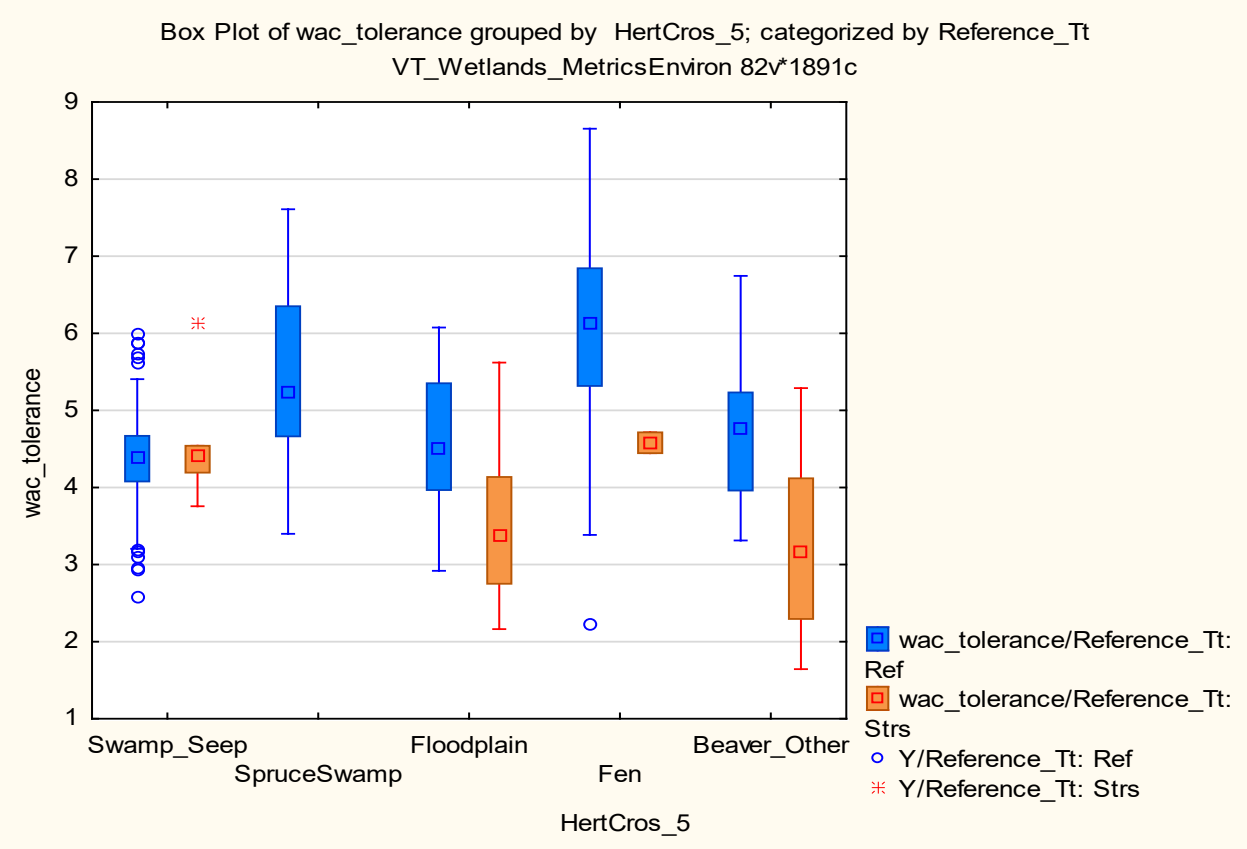
Appendix C.


Box Plot of pc_WetUpl-5-3 grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
pc_WetUpl-5-3
80
70
60
50
40
30
20
10
0
-10
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
pc_WetUpl-5-3/Reference_Tt: Ref
pc_WetUpl-5-3/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs

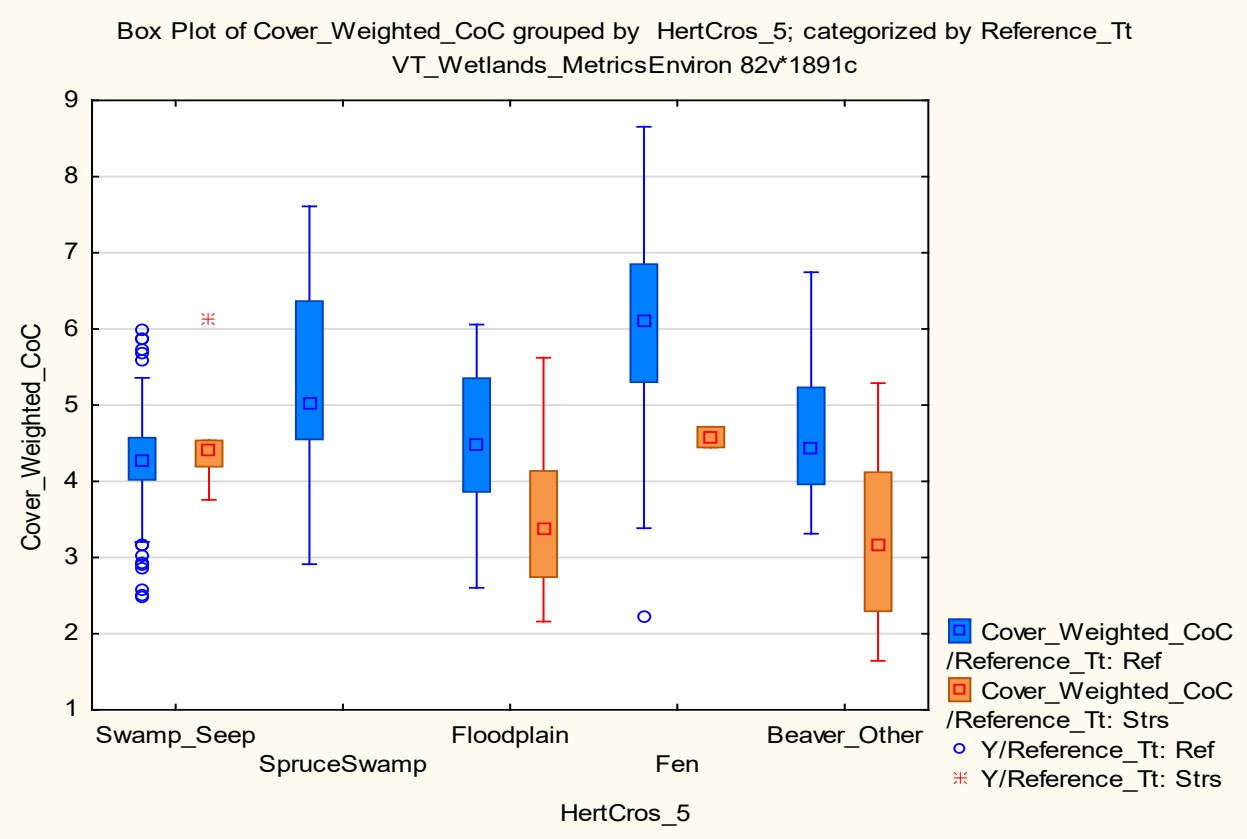

Box Plot of RelImpNative grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
RelImpNative
105
100
95
90
85
80
75
70
65
60
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5

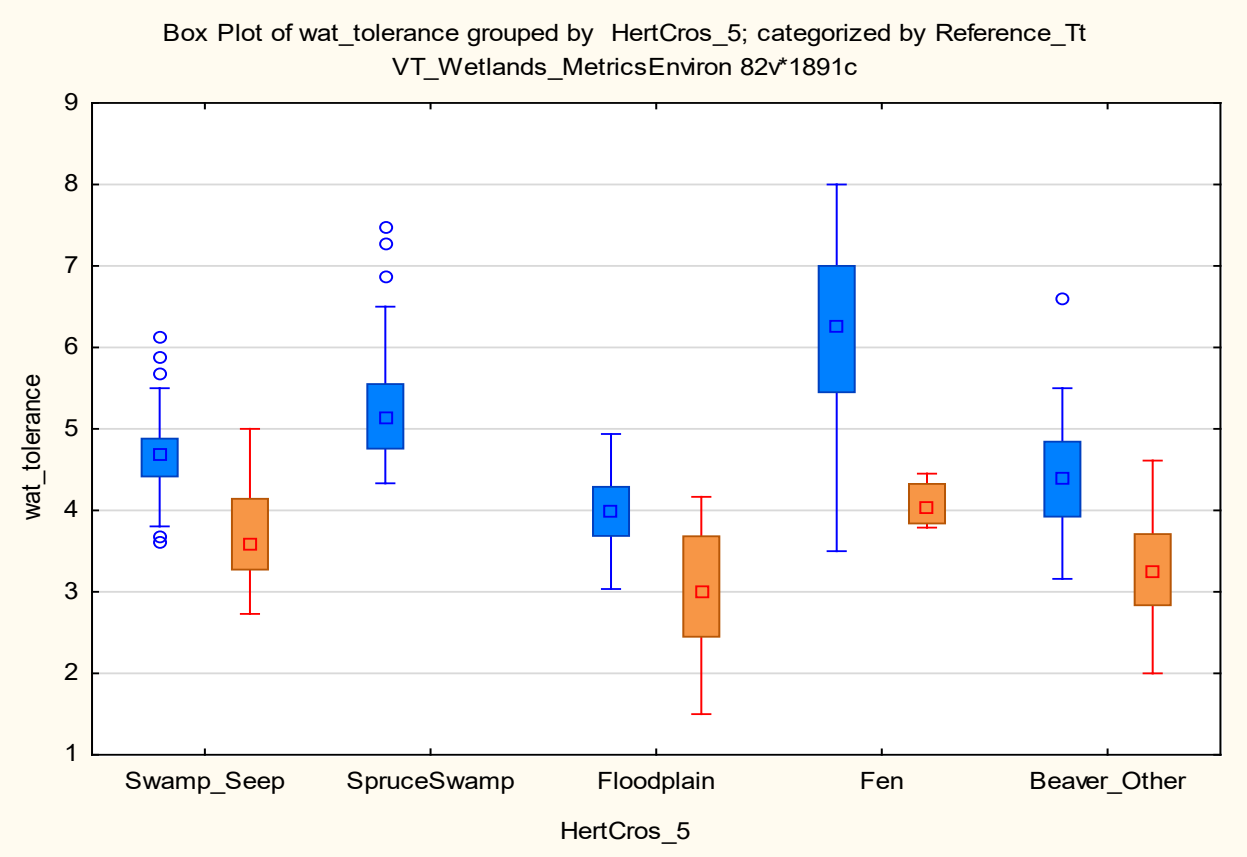
Appendix C.


Box Plot of RelImpSenstv710 grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
RelImpSenstv710
120
100
80
60
40
20
0
-20
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
RelImpSenstv710/Reference_Tt: Ref
RelImpSenstv710/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs
Y/Reference_Tt: Strs

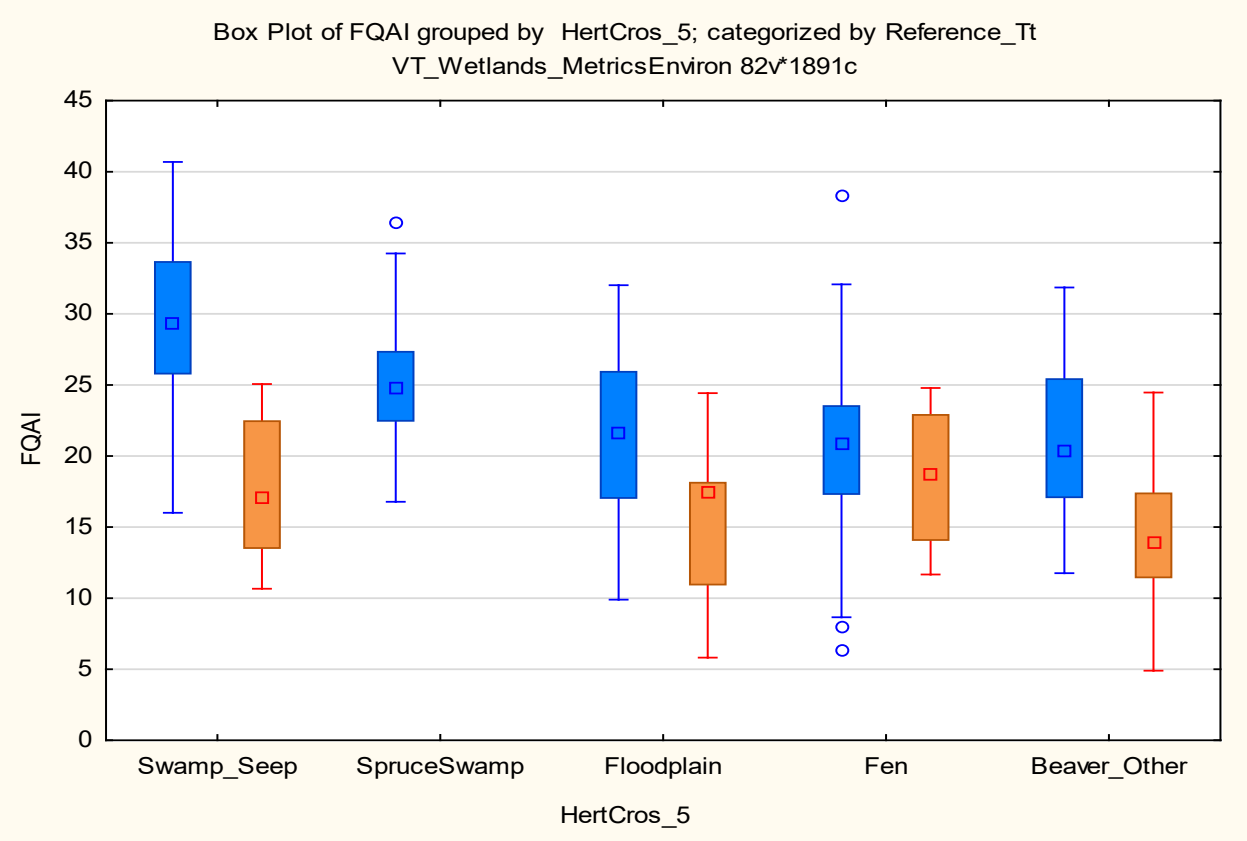

Box Plot of wac_tolerance grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
wac_tolerance
9
8
7
6
5
4
3
2
1
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
wac_tolerance/Reference_Tt: Ref
wac_tolerance/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs

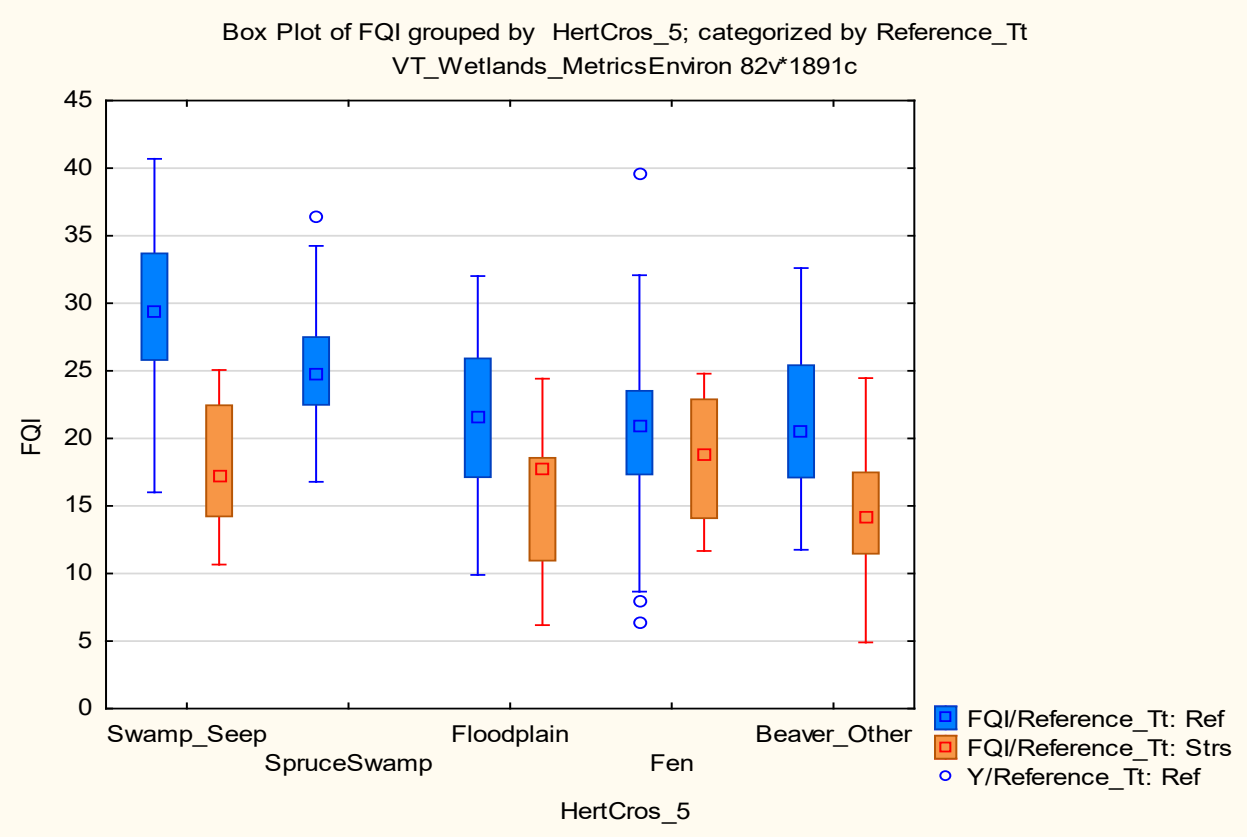
Appendix C.


Box Plot of Cover_Weighted_CoC grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
Cover_Weighted_CoC
9
8
7
6
5
4
3
2
1
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
Cover_Weighted_CoC /Reference_Tt: Ref
Cover_Weighted_CoC /Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs

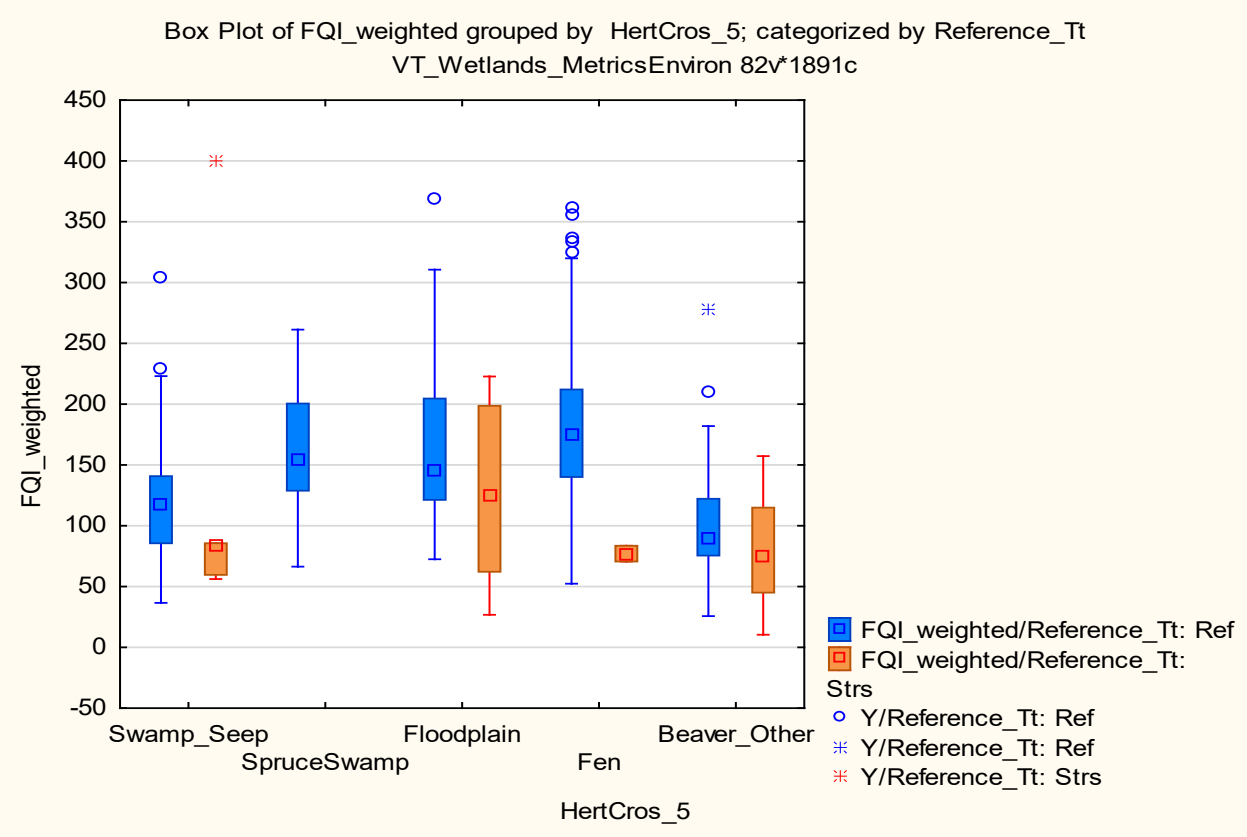

Box Plot of wat_tolerance grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
wat_tolerance
9
8
7
6
5
4
3
2
1
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5

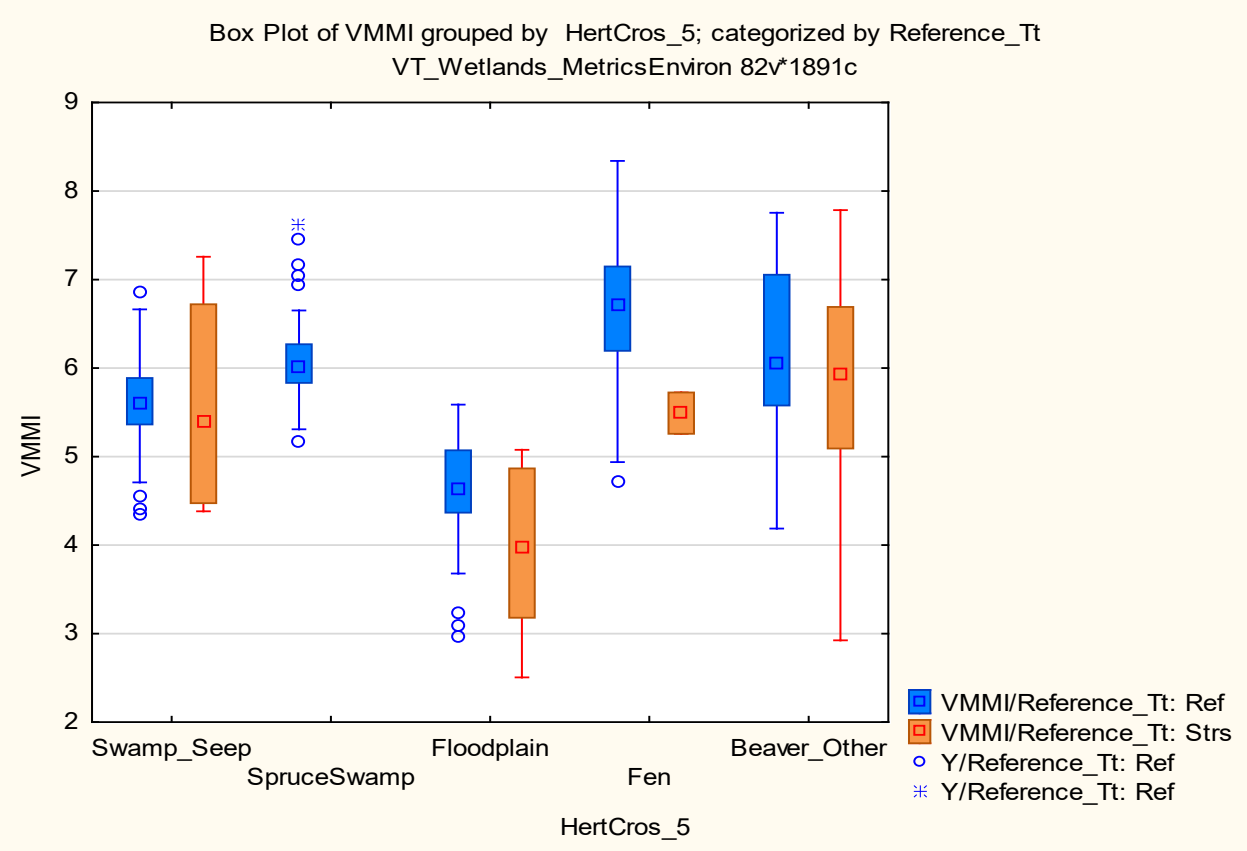
Appendix C.


Box Plot of FQAI grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
FQAI
45
40
35
30
25
20
15
10
5
0
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5

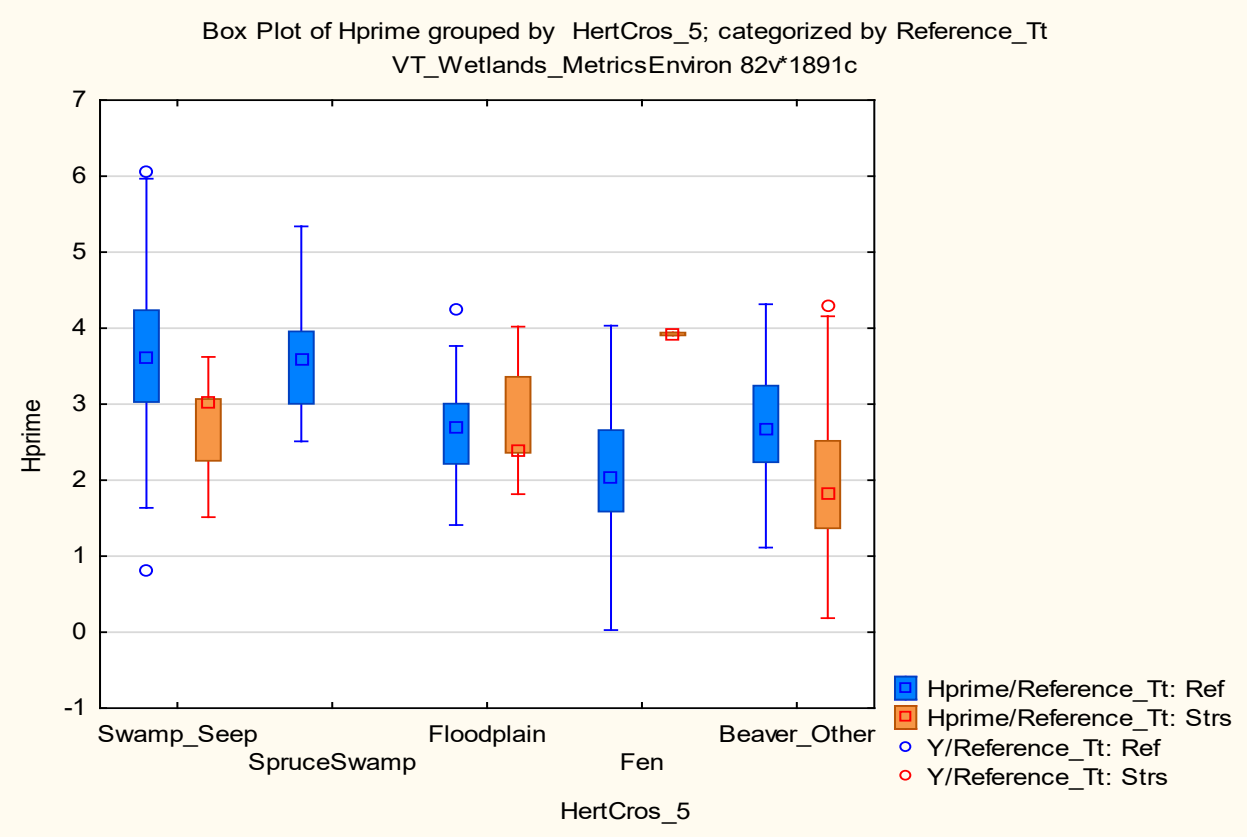

Box Plot of FQI grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
FQI
45
40
35
30
25
20
15
10
5
0
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
FQI/Reference_Tt: Ref
FQI/Reference_Tt: Strs
Y/Reference_Tt: Ref

Appendix C.


Box Plot of FQI_weighted grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
FQI_weighted
450
400
350
300
250
200
150
100
50
0
-50
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
FQI_weighted/Reference_Tt: Ref
FQI_weighted/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs


Box Plot of VMMI grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
VMMI
9
8
7
6
5
4
3
2
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
VMMI/Reference_Tt: Ref
VMMI/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Ref

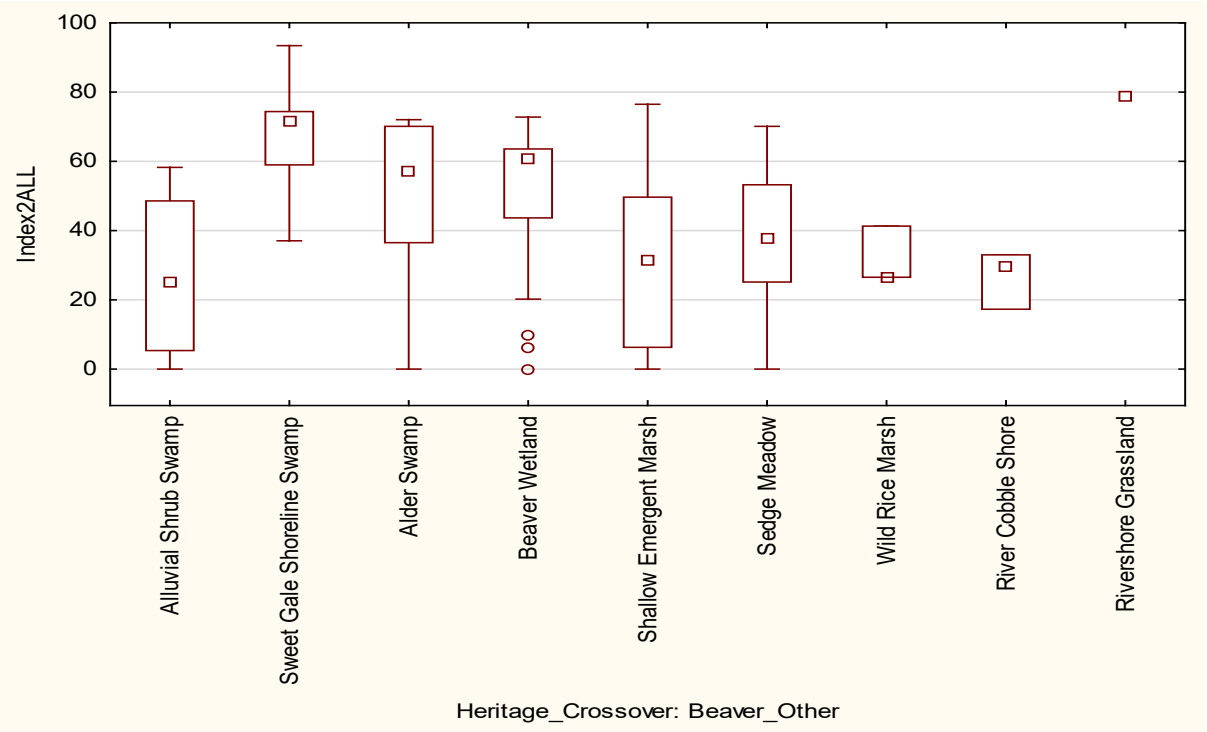
Appendix C.

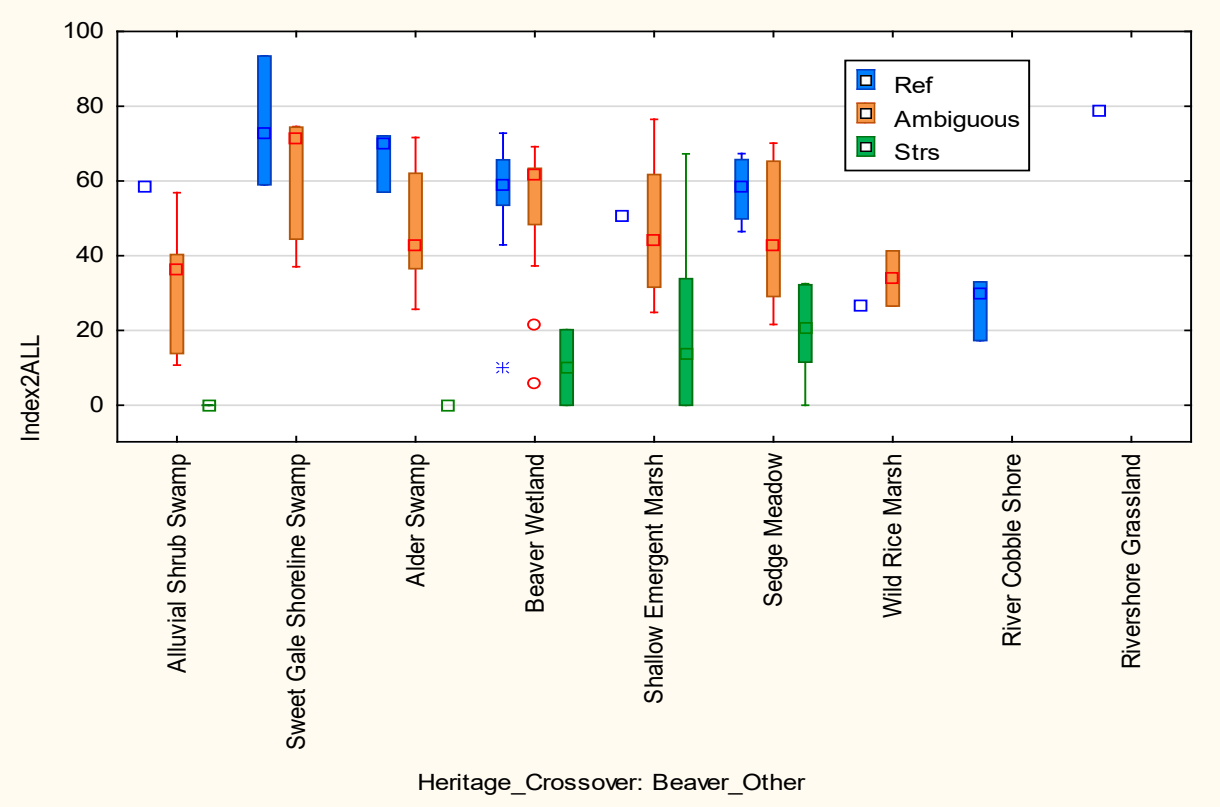

Box Plot of Hprime grouped by HertCros_5; categorized by Reference_Tt
VT_Wetlands_MetricsEnviron 82v*1891c
Hprime
7
6
5
4
3
2
1
0
-1
Swamp_Seep
SpruceSwamp
Floodplain
Fen
Beaver_Other
HertCros_5
Hprime/Reference_Tt: Ref
Hprime/Reference_Tt: Strs
Y/Reference_Tt: Ref
Y/Reference_Tt: Strs

Appendix D.

Appendix D.

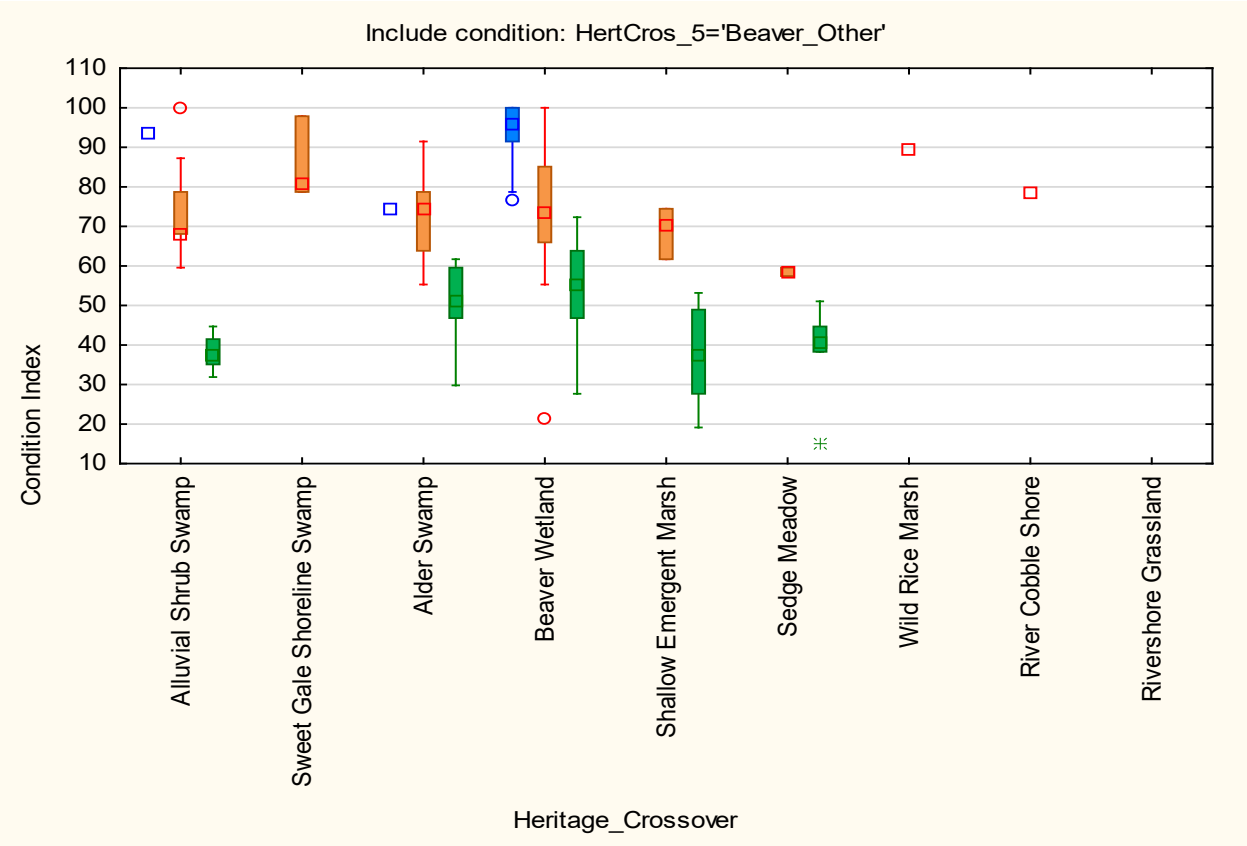
Section D.1 Characteristics among Beaver_Other wetland types





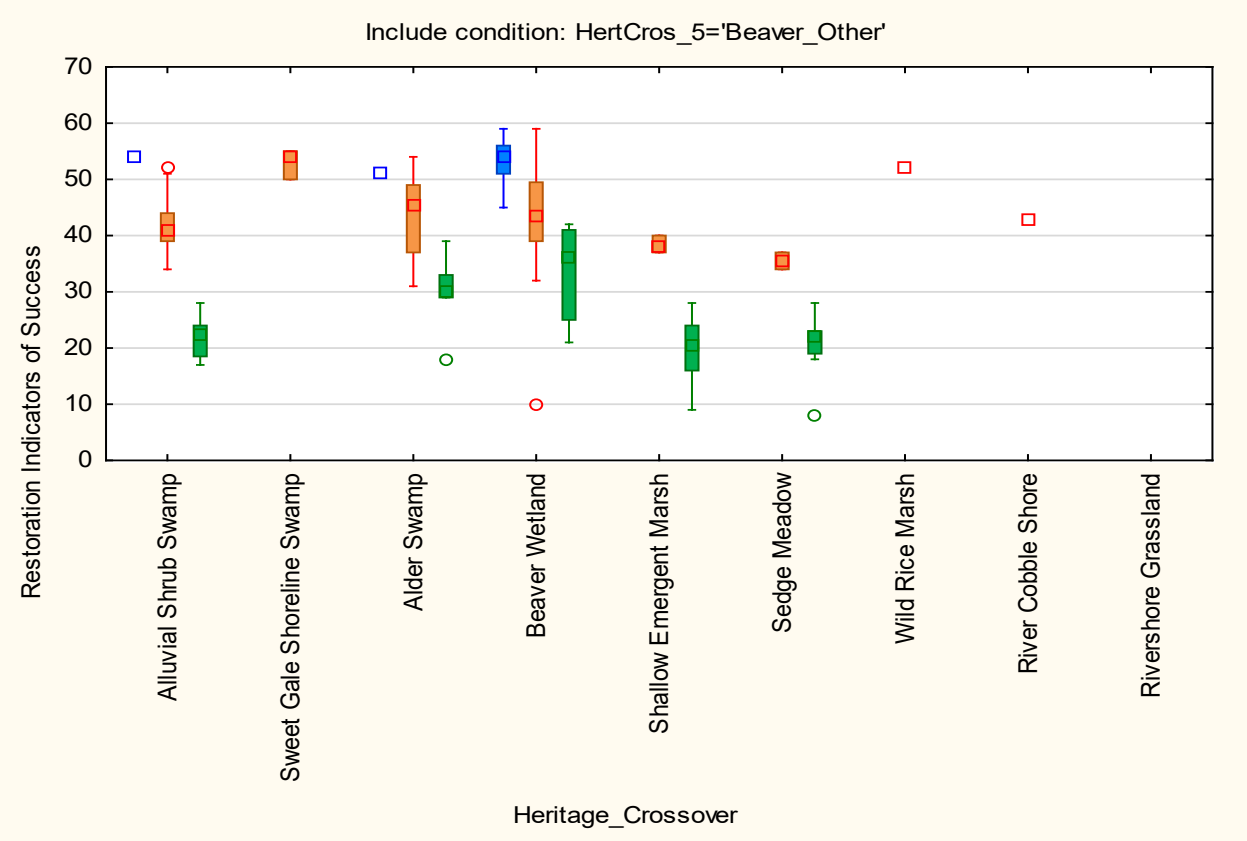
Appendix D.


Include condition: HertCros_5='Beaver_Other'
Grand Total
100
90
80
70
60
50
40
30
20
10
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover

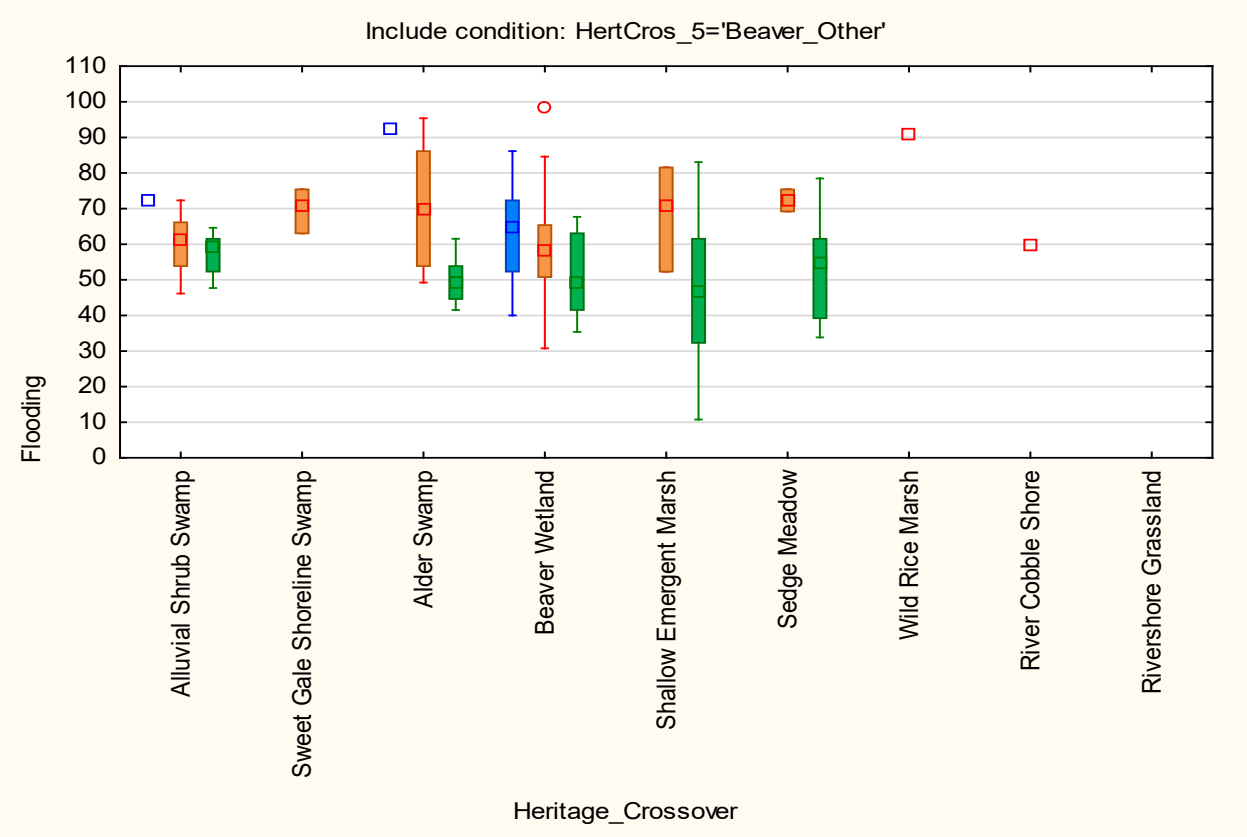

Include condition: HertCros_5='Beaver_Other'
Condition Index
110
100
90
80
70
60
50
40
30
20
10
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover

Appendix D.


Include condition: HertCros_5='Beaver_Other'
Function Index
90
80
70
60
50
40
30
20
10
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover

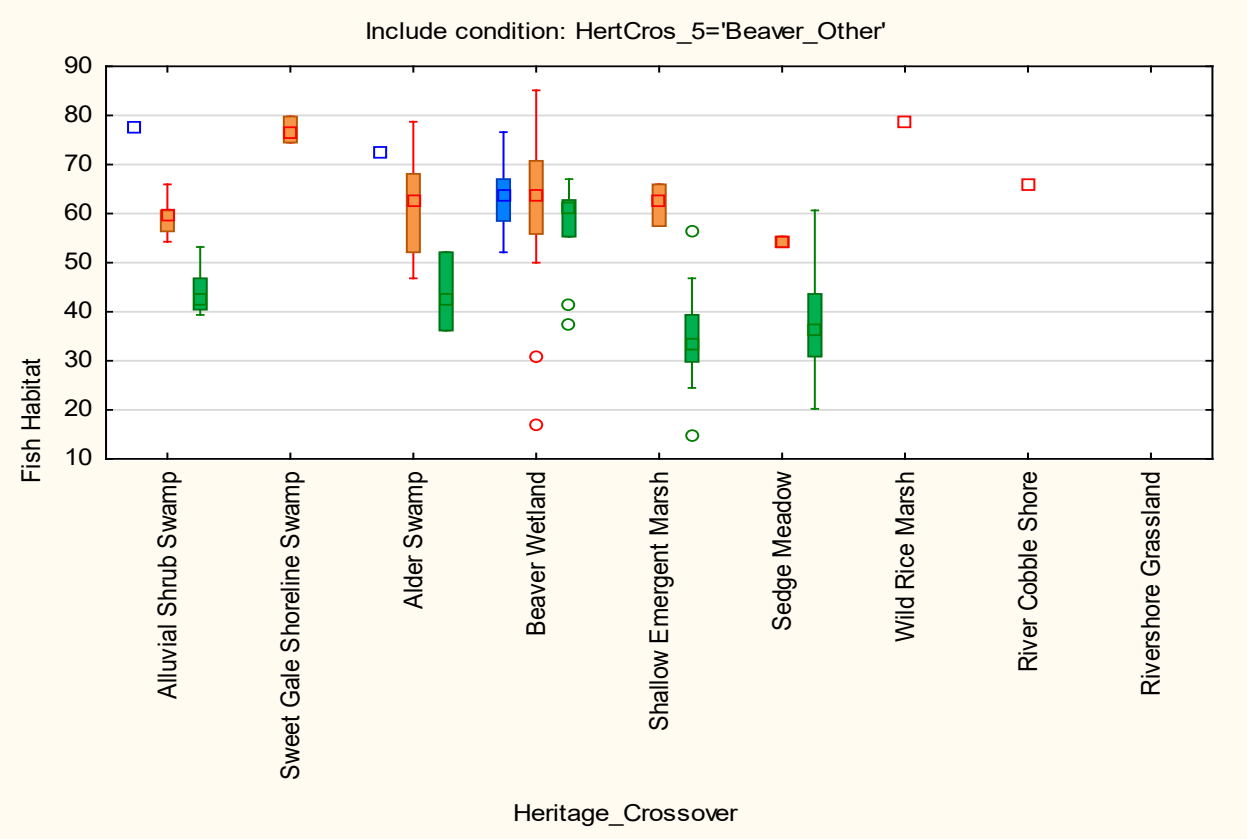

Include condition: HertCros_5='Beaver_Other'
Restoration Indicators of Success
70
60
50
40
30
20
10
0
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover

Appendix D.


Include condition: HertCros_5='Beaver_Other'
Flooding
110
100
90
80
70
60
50
40
30
20
10
0
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover


Include condition: HertCros_5='Beaver_Other'
Clean Water
90
80
70
60
50
40
30
20
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover

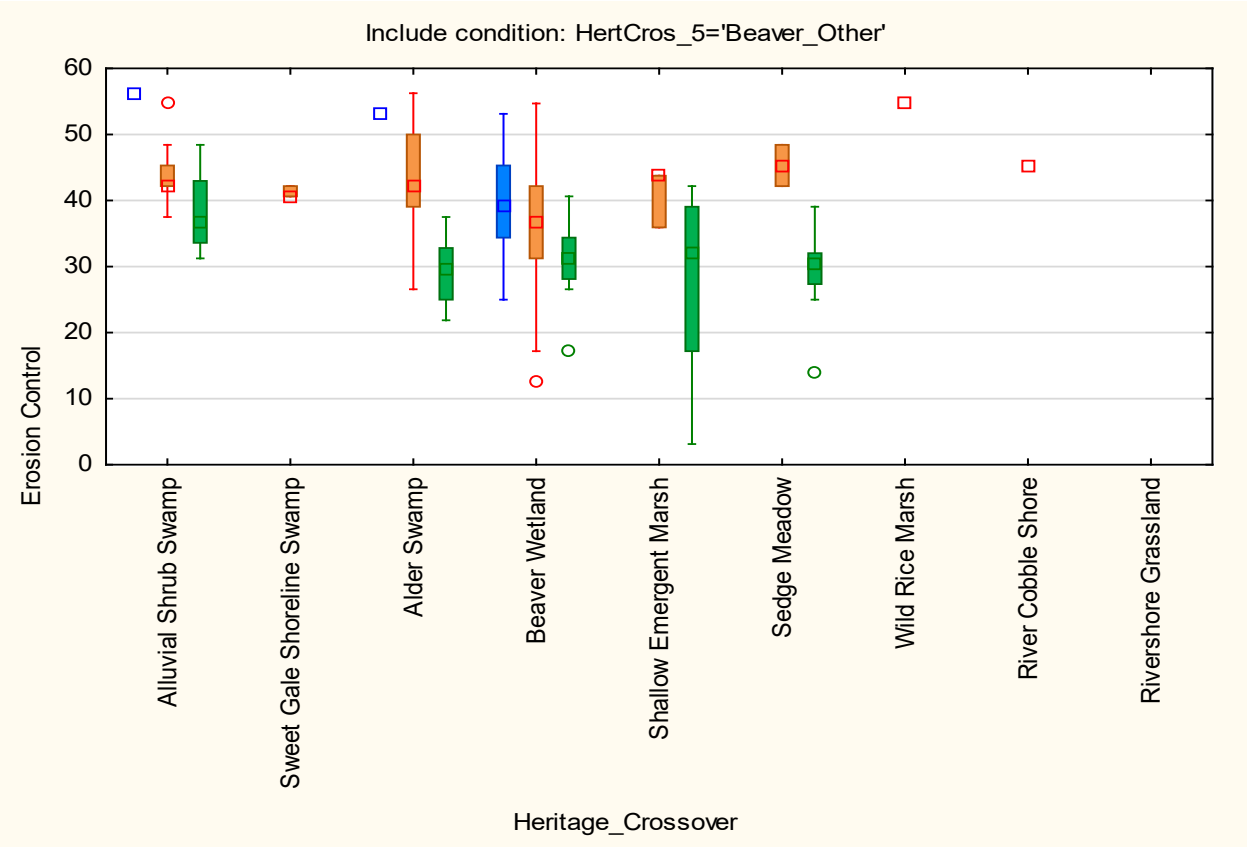
Appendix D.


Include condition: HertCros_5='Beaver_Other'
Fish Habitat
90
80
70
60
50
40
30
20
10
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover

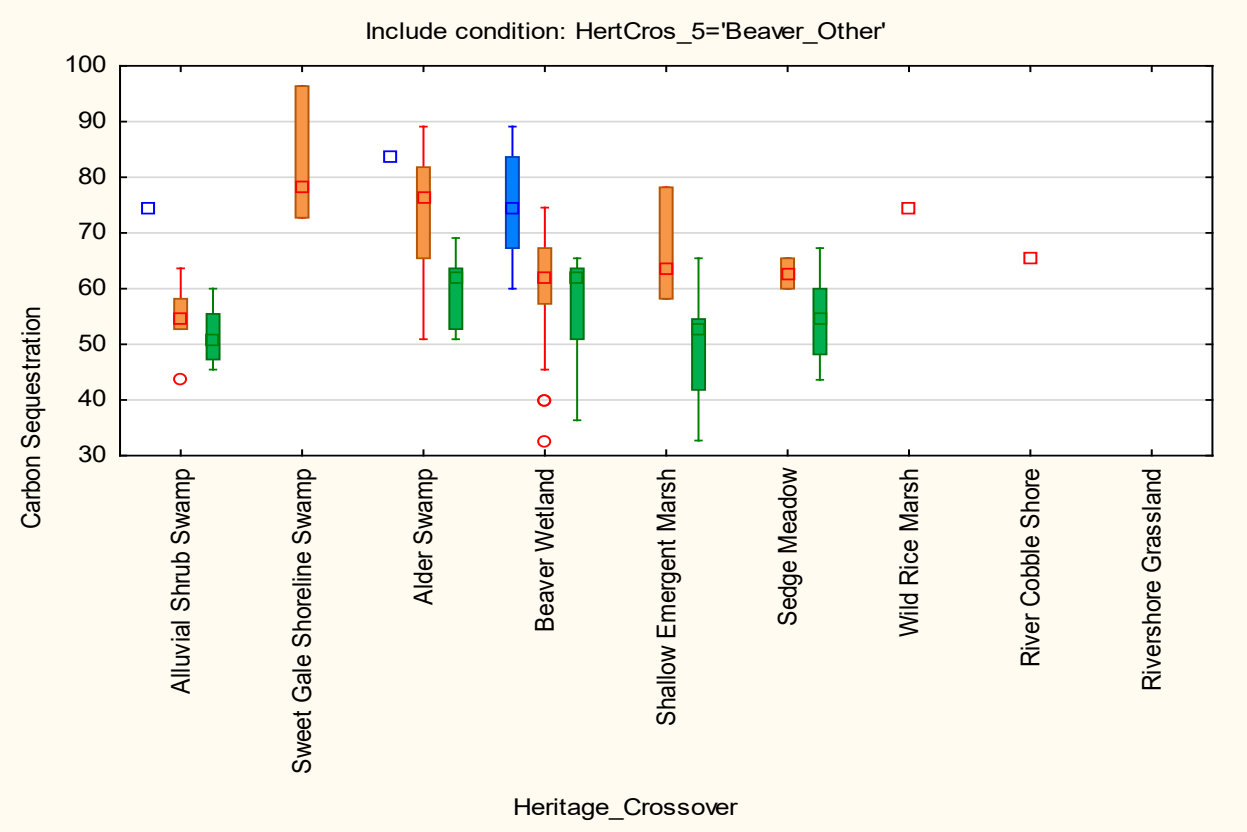

Include condition: HertCros_5='Beaver_Other'
Wildlife Habitat
80
70
60
50
40
30
20
10
0
-10
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover

Appendix D.


Include condition: HertCros_5='Beaver_Other'
Aesthetics
110
100
90
80
70
60
50
40
30
20
10
0
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover


Include condition: HertCros_5='Beaver_Other'
Erosion Control
60
50
40
30
20
10
0
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover

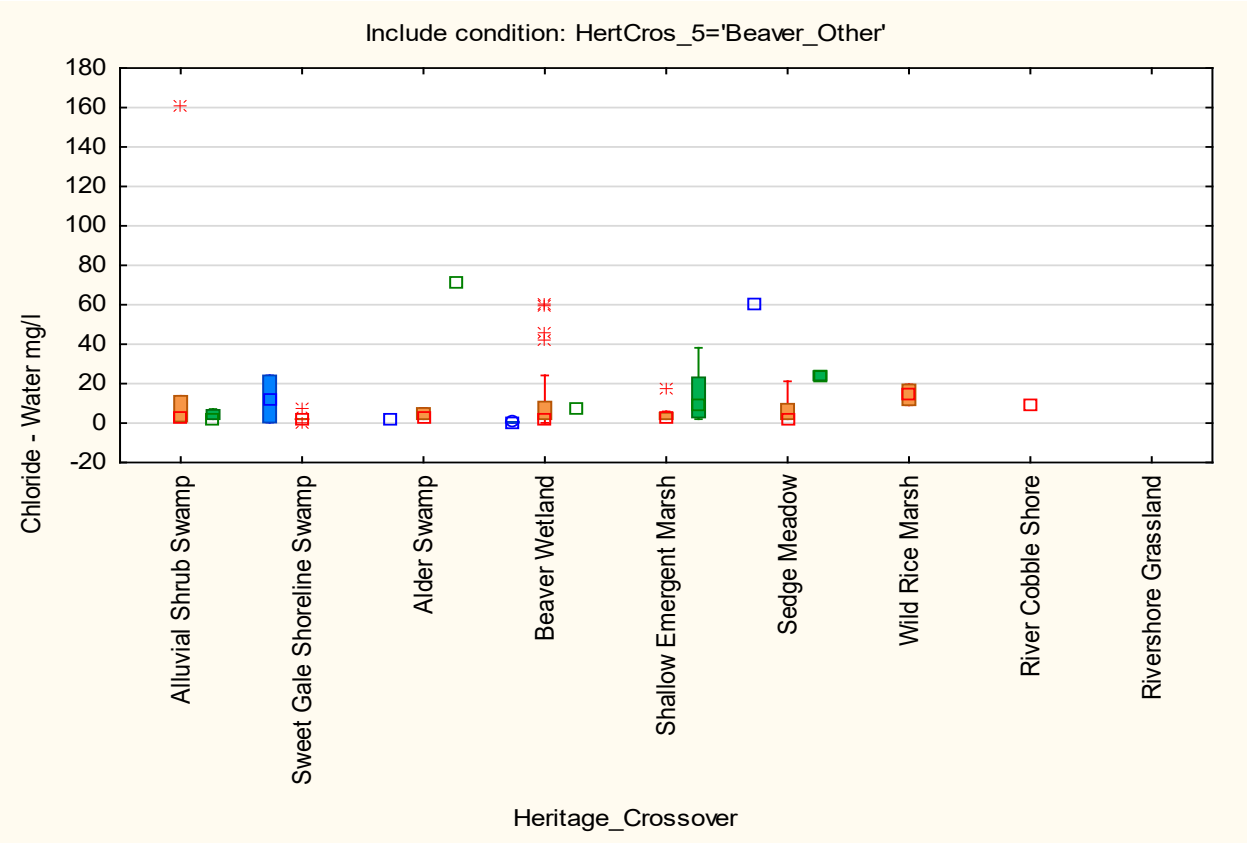
Appendix D.


Include condition: HertCros_5='Beaver_Other'
Carbon Sequestration
100
90
80
70
60
50
40
30
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover


Include condition: HertCros_5='Beaver_Other'
Hydro water pH
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover

Appendix D.


Include condition: HertCros_5='Beaver_Other'
DO MG/L
12
10
8
6
4
2
0
-2
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover


Include condition: HertCros_5='Beaver_Other'
Chloride - Water mg/l
180
160
140
120
100
80
60
40
20
0
-20
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover

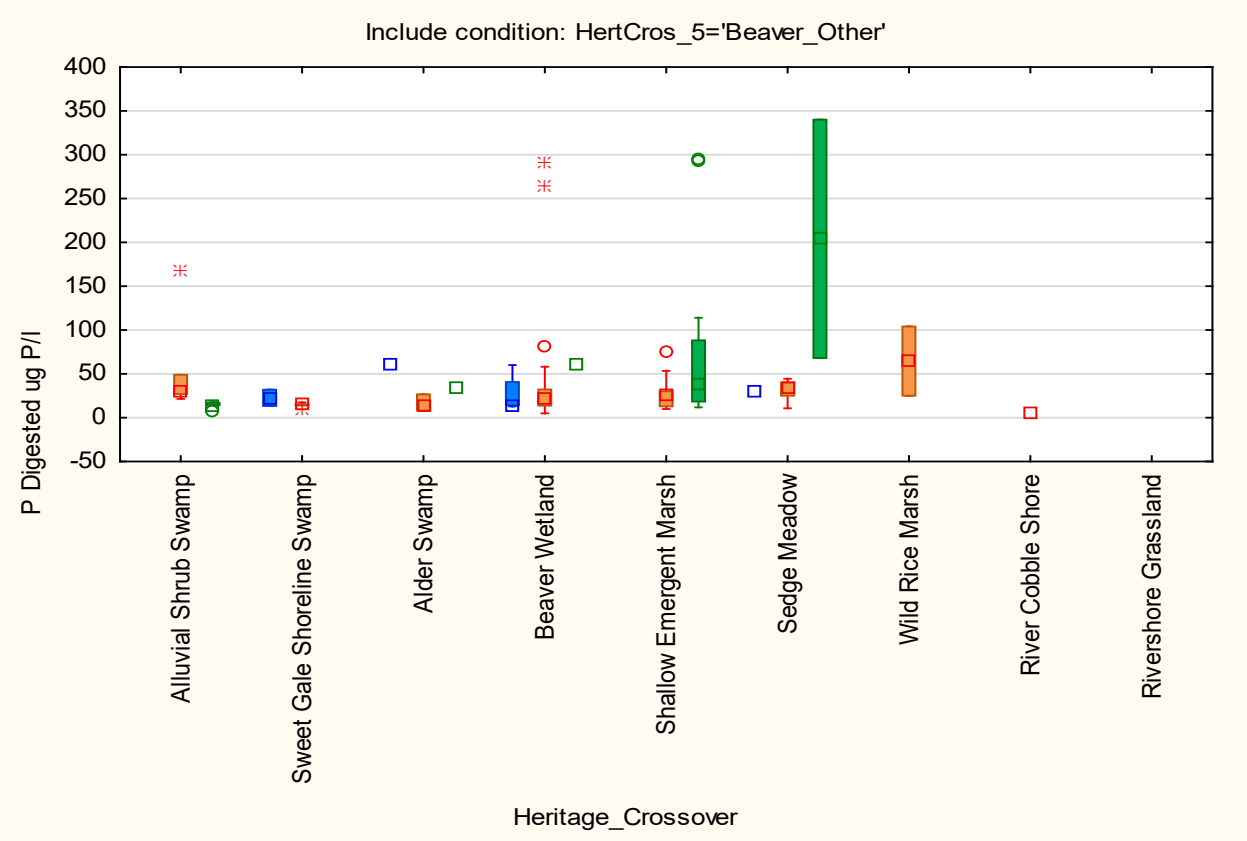
Appendix D.


Include condition: HertCros_5='Beaver_Other'
Conductivity_Lab_Or_Field_Best
900
800
700
600
500
400
300
200
100
0
-100
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover

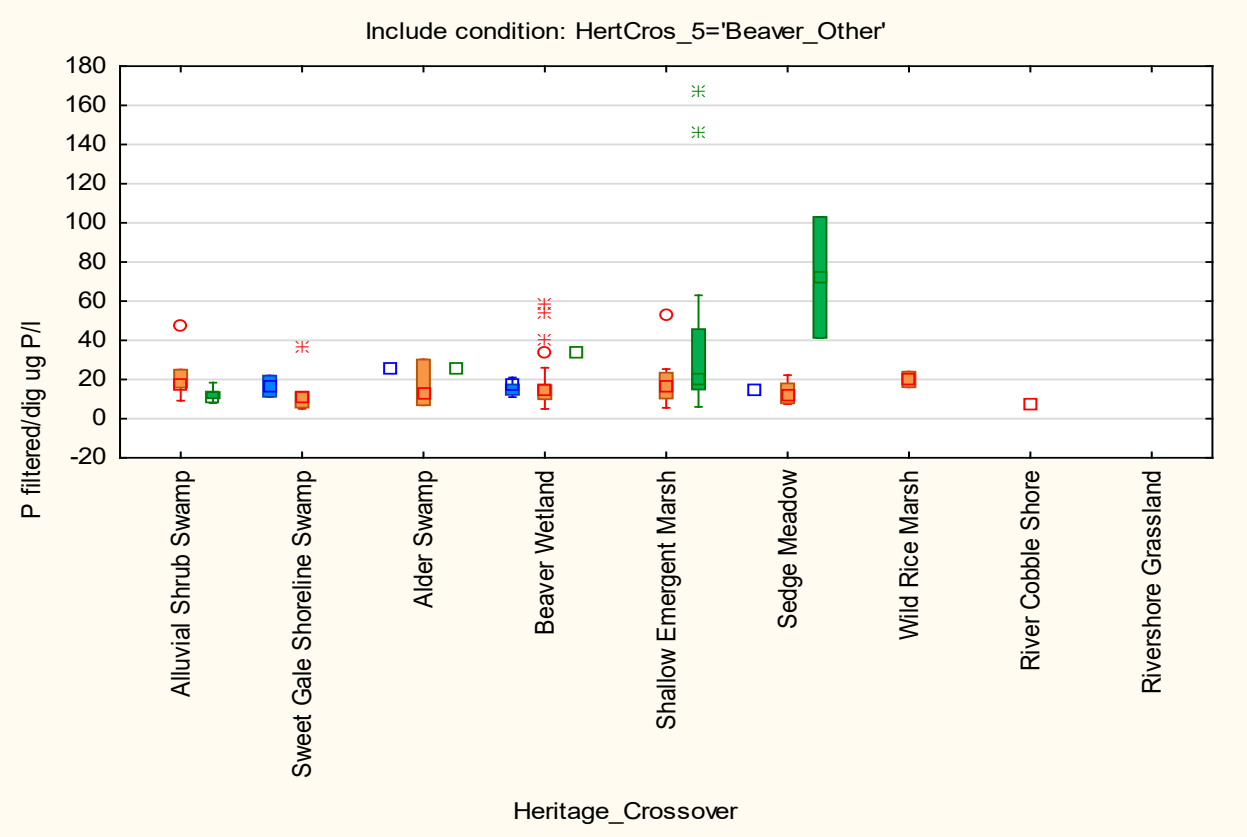

Include condition: HertCros_5='Beaver_Other'
Nitrate + Nitrite - Water mg-N/l
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover

Appendix D.


Include condition: HertCros_5='Beaver_Other'
N total mg/l
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover


Include condition: HertCros_5='Beaver_Other'
P Digested ug P/l
400
350
300
250
200
150
100
50
0
-50
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover

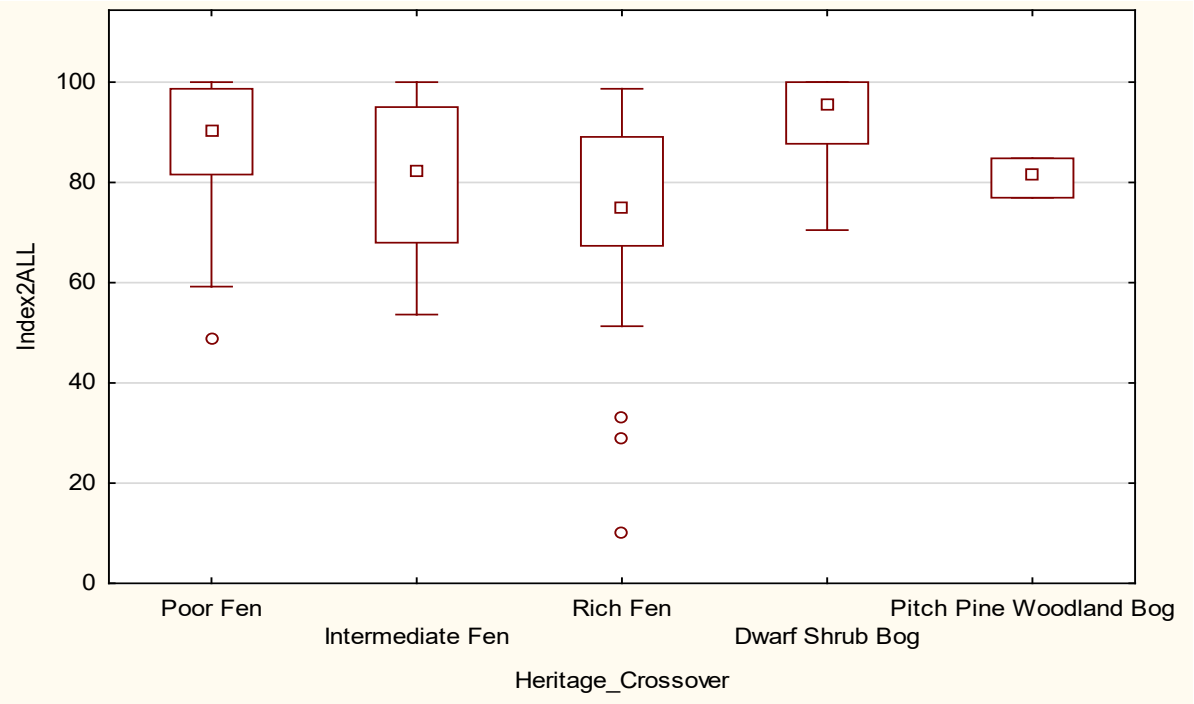
Appendix D.

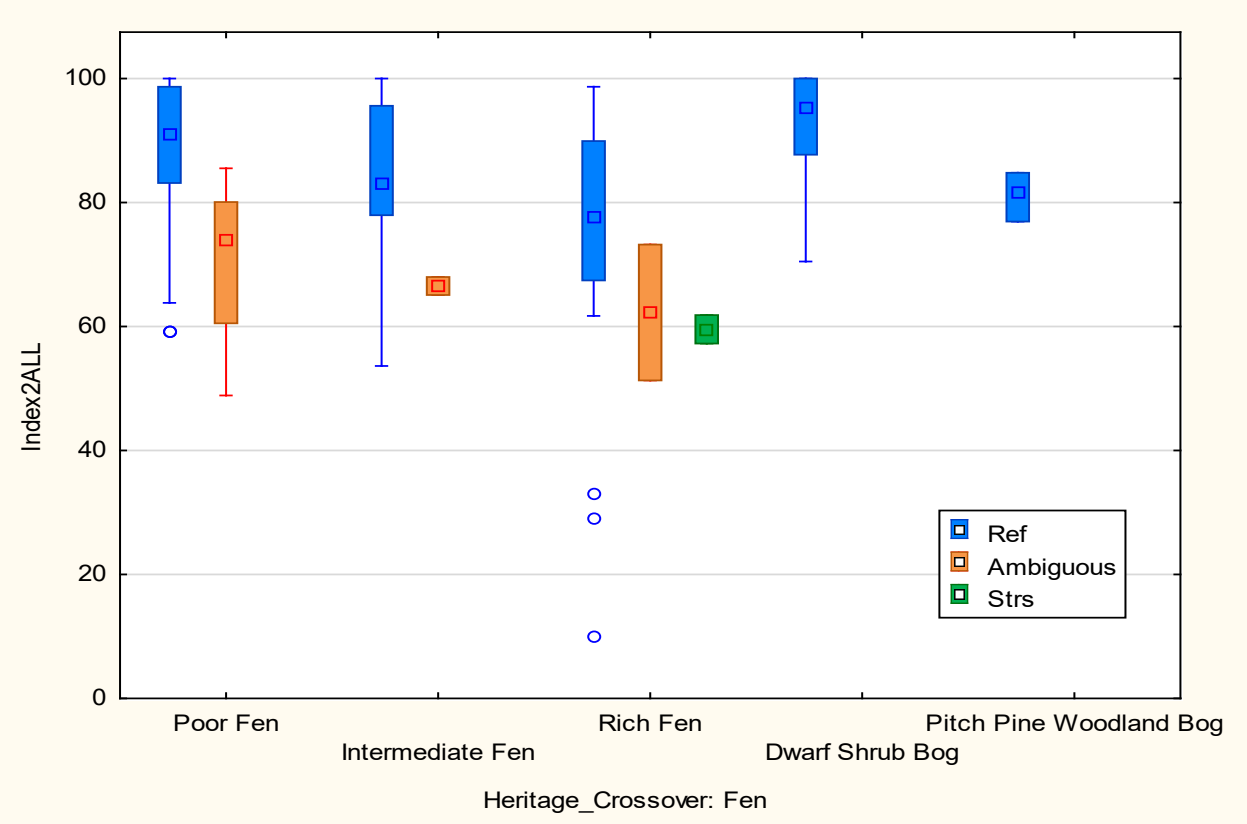

Include condition: HertCros_5='Beaver_Other'
P filtered/dig ug P/l
180
160
140
120
100
80
60
40
20
0
-20
Alluvial Shrub Swamp
Sweet Gale Shoreline Swamp
Alder Swamp
Beaver Wetland
Shallow Emergent Marsh
Sedge Meadow
Wild Rice Marsh
River Cobble Shore
Rivershore Grassland
Heritage_Crossover

Appendix D.

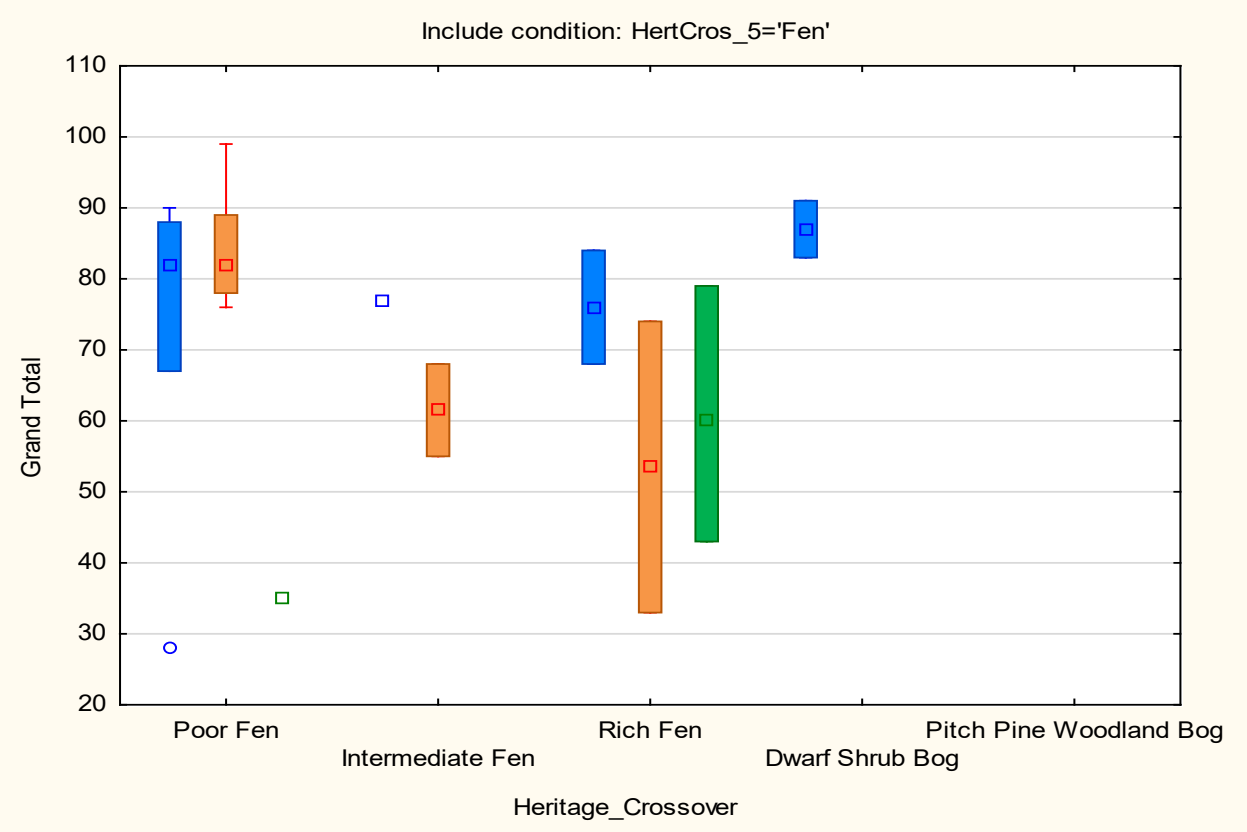
Appendix D

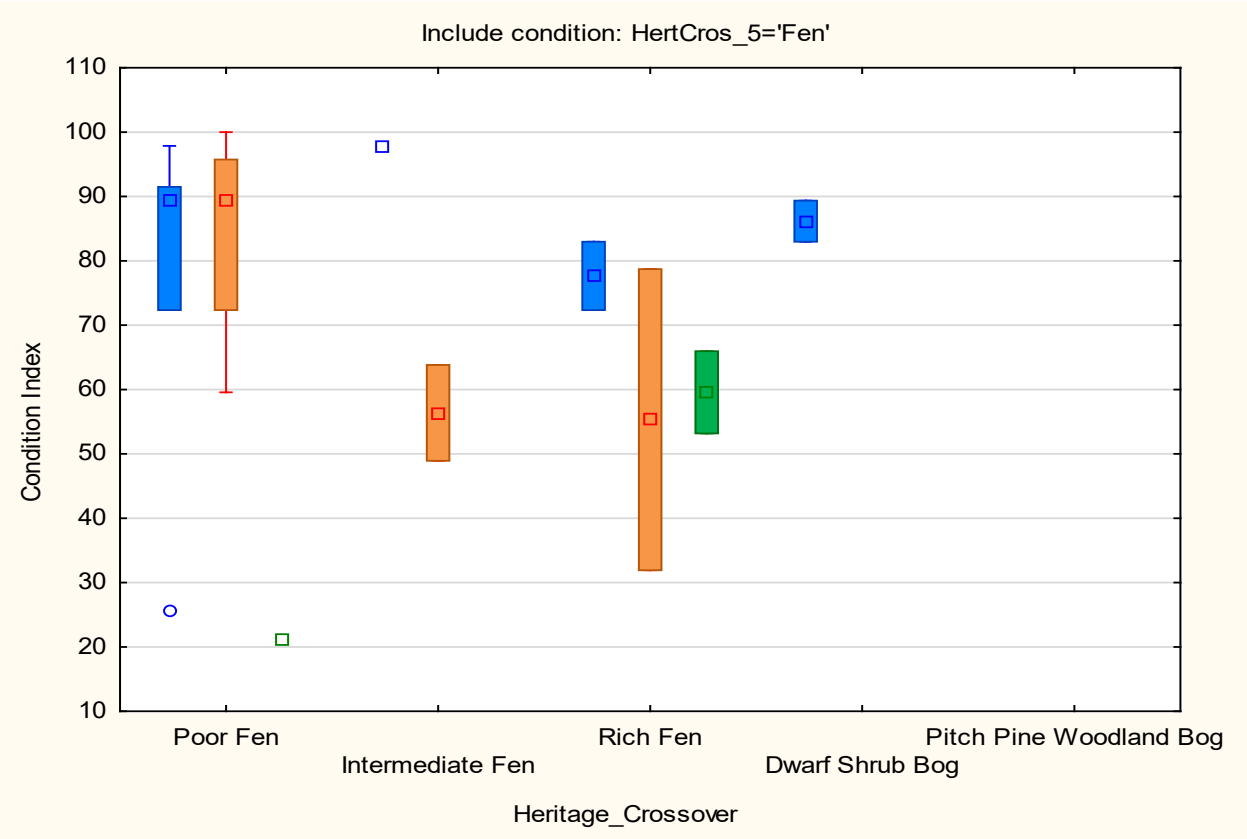
Section D.2 Characteristics among Fen wetland types



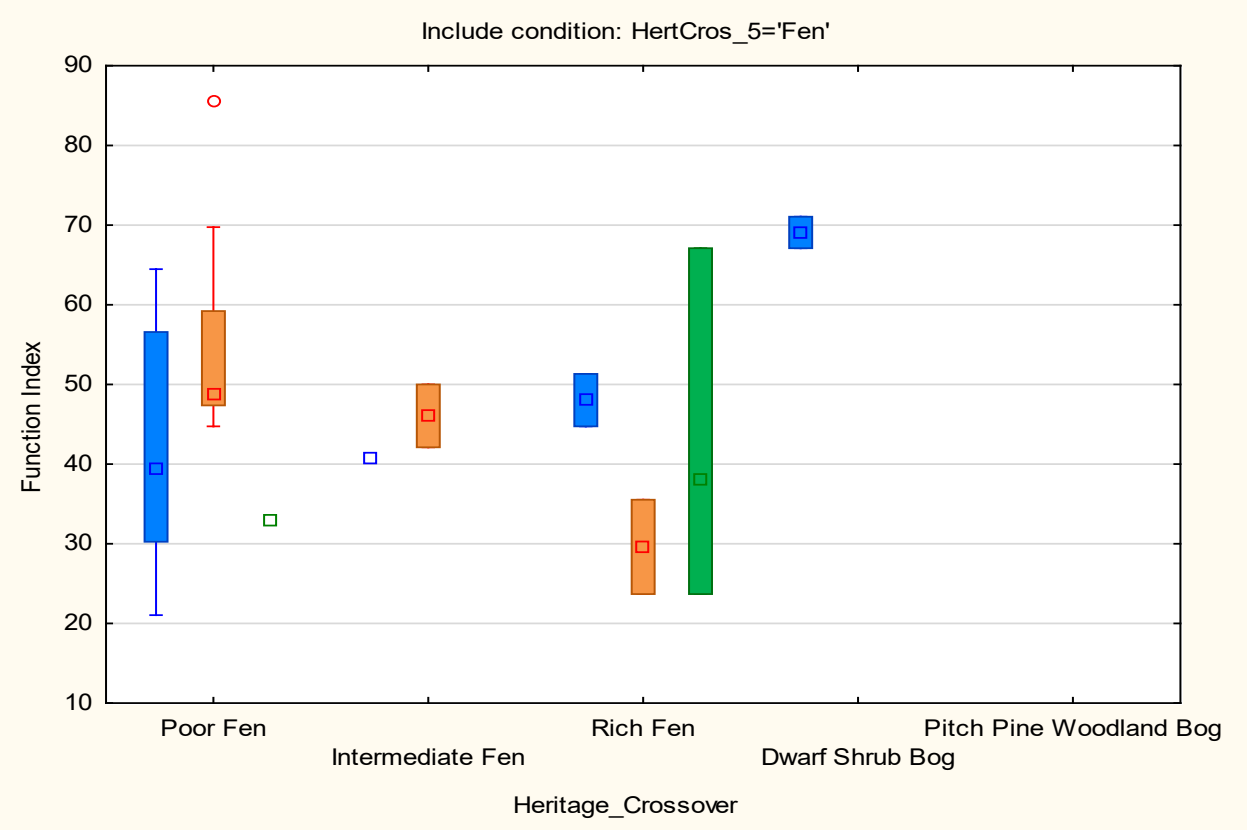


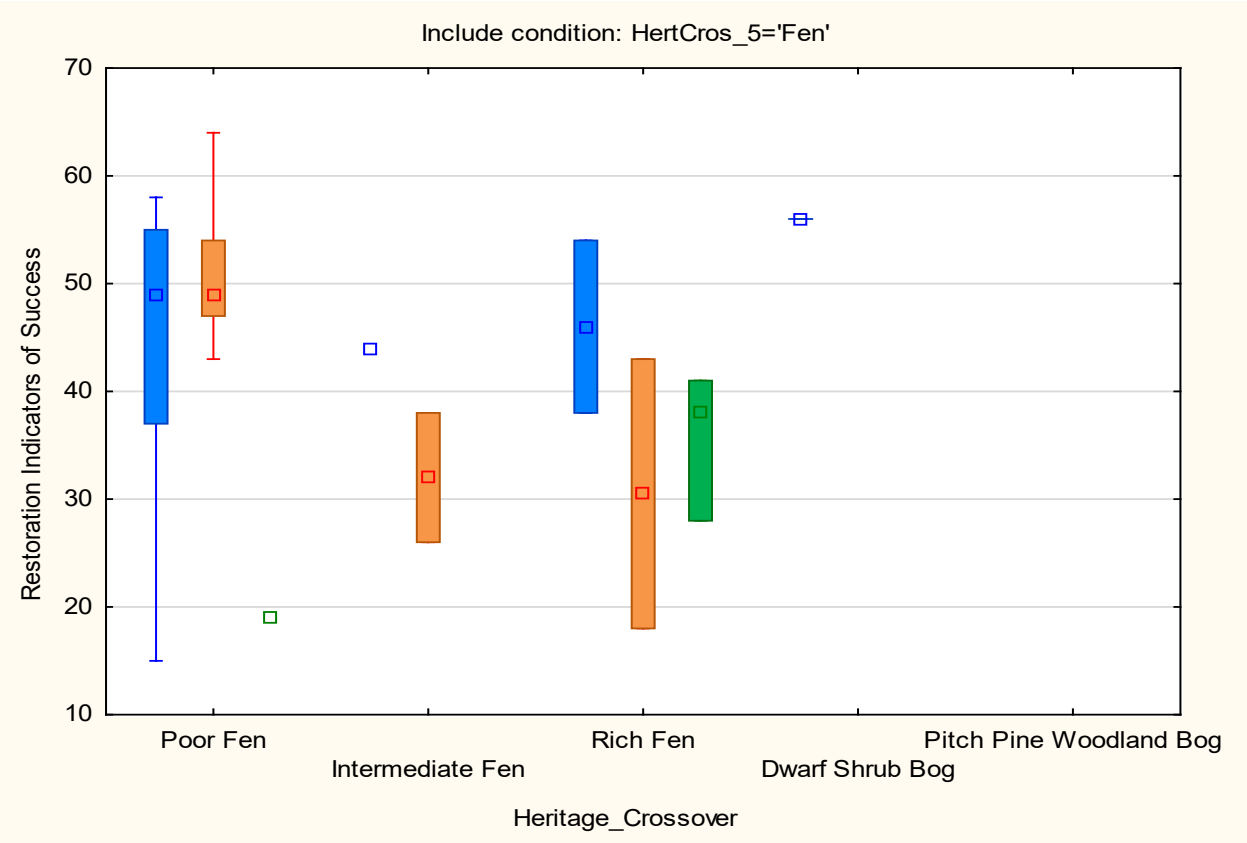
Appendix D.


Include condition: HertCros_5='Fen'
Grand Total
110
100
90
80
70
60
50
40
30
20
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

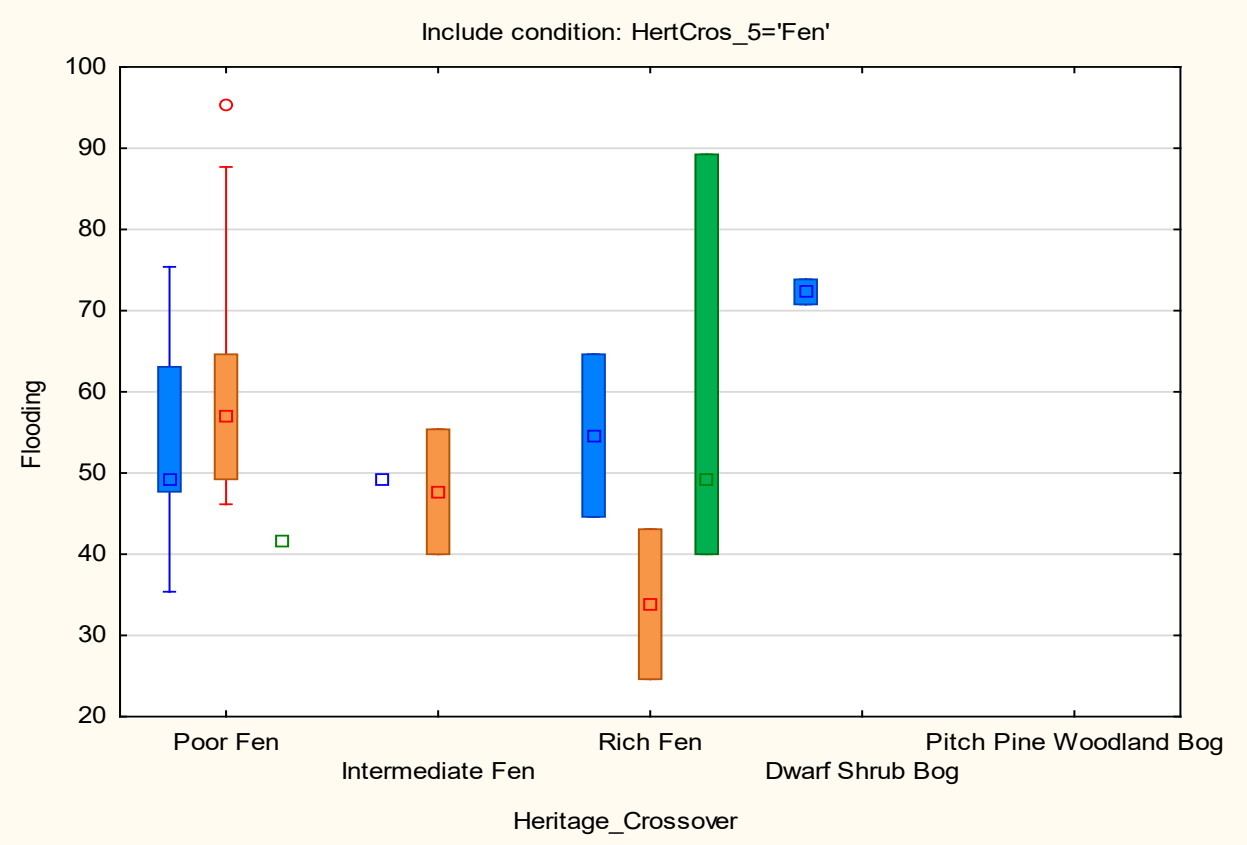

Include condition: HertCros_5='Fen'
Condition Index
110
100
90
80
70
60
50
40
30
20
10
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

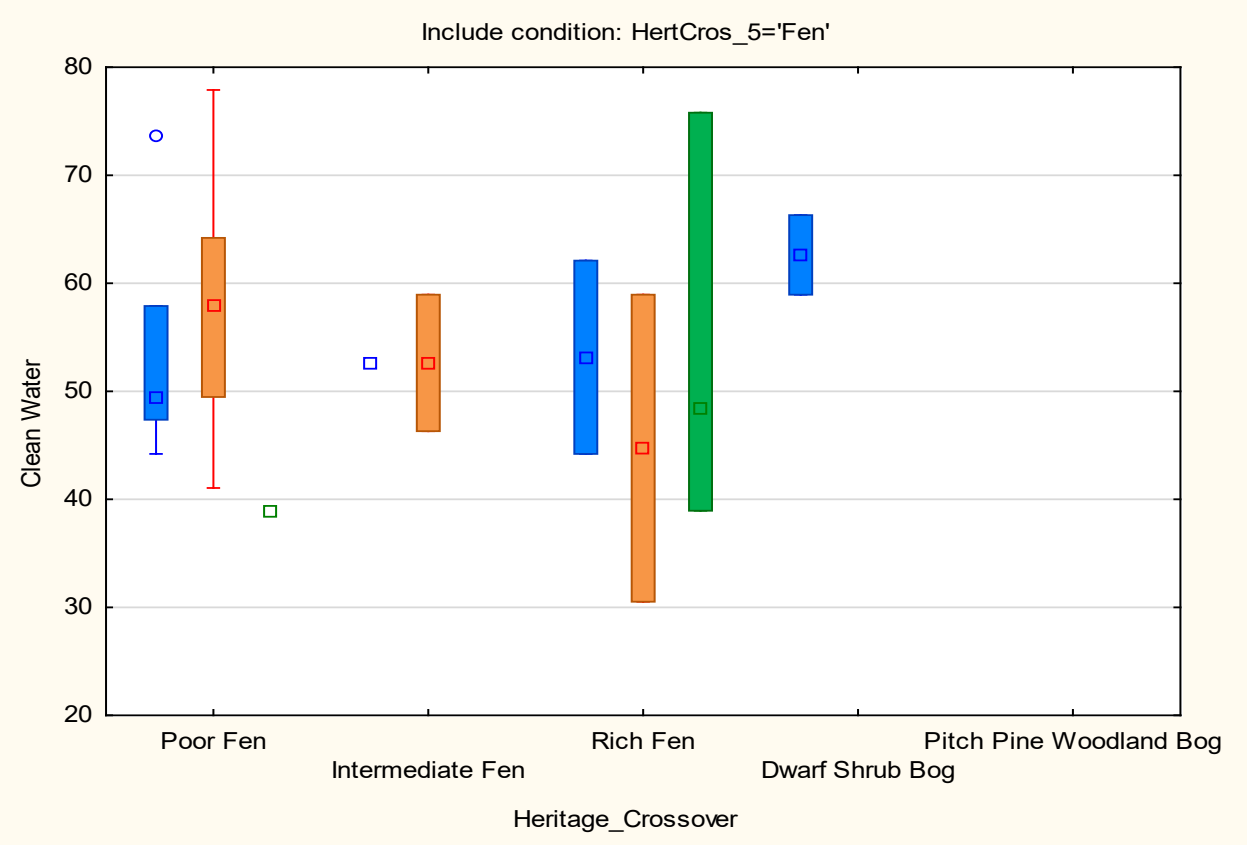
Appendix D.


Include condition: HertCros_5='Fen'
Function Index
90
80
70
60
50
40
30
20
10
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

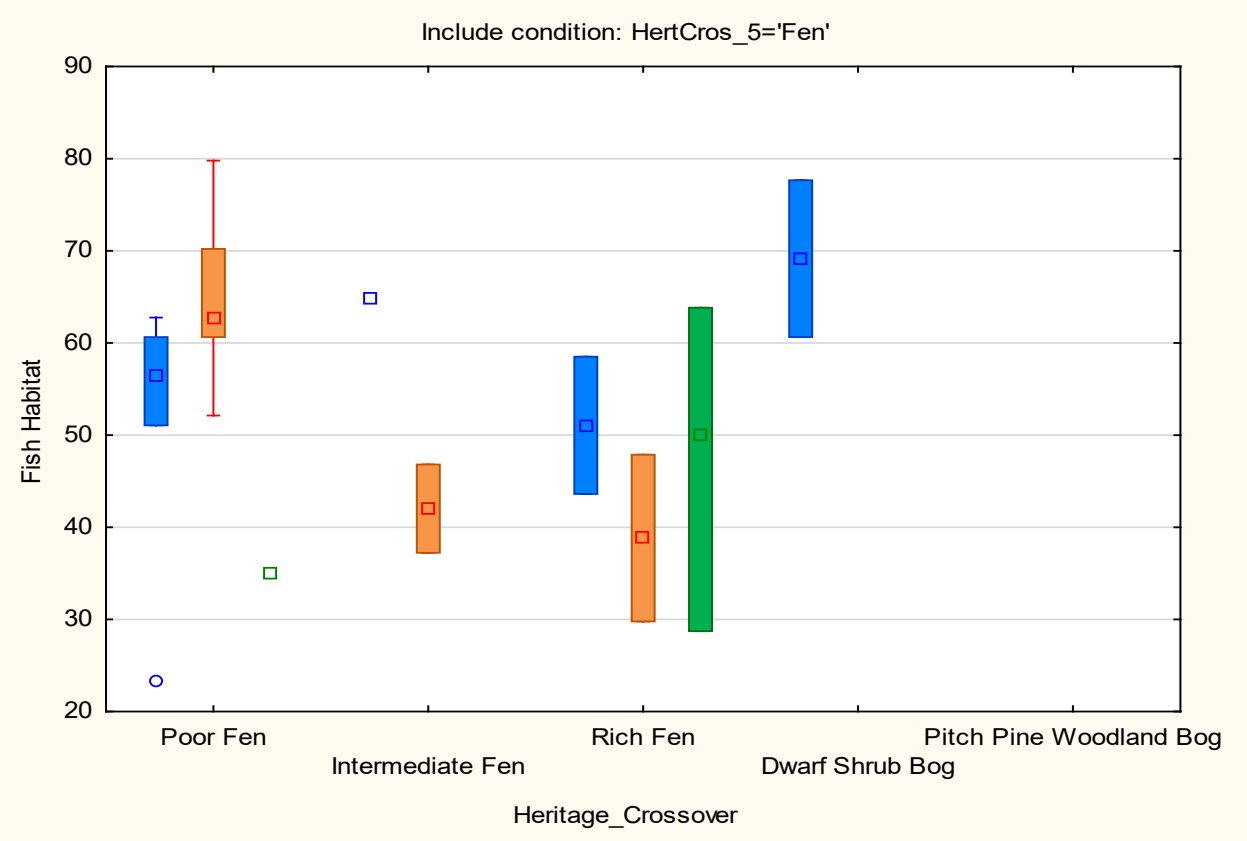

Include condition: HertCros_5='Fen'
Restoration Indicators of Success
70
60
50
40
30
20
10
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

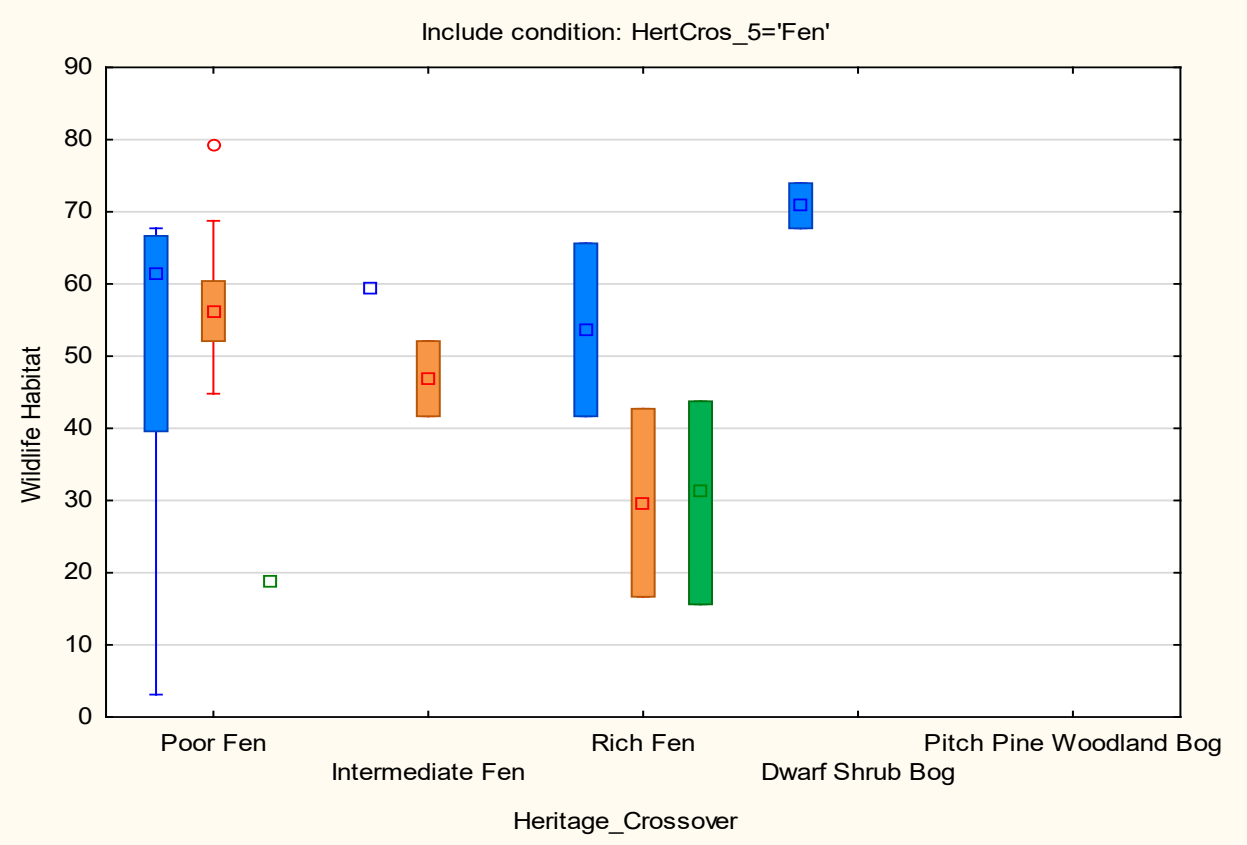
Appendix D.


Include condition: HertCros_5='Fen'
Flooding
100
90
80
70
60
50
40
30
20
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

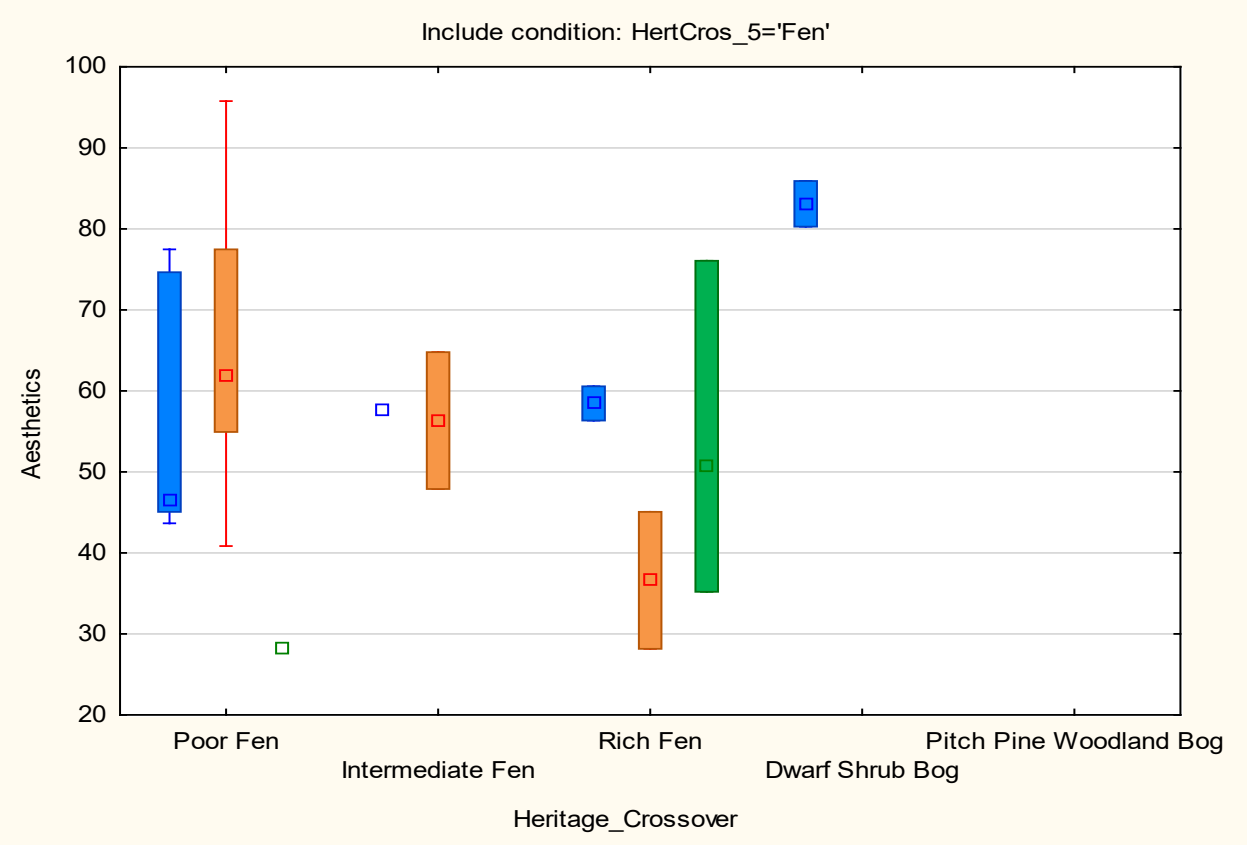

Include condition: HertCros_5='Fen'
Clean Water
80
70
60
50
40
30
20
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

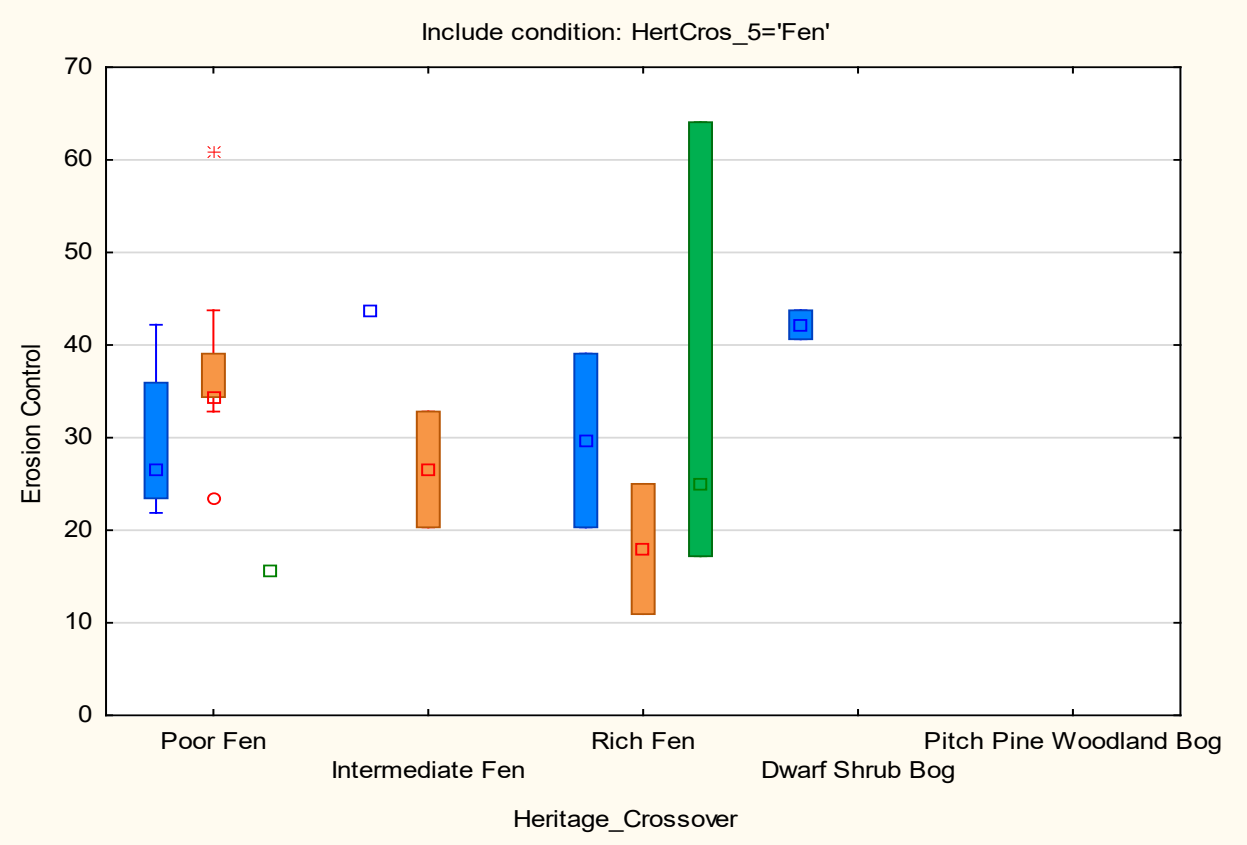
Appendix D.


Include condition: HertCros_5='Fen'
Fish Habitat
90
80
70
60
50
40
30
20
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

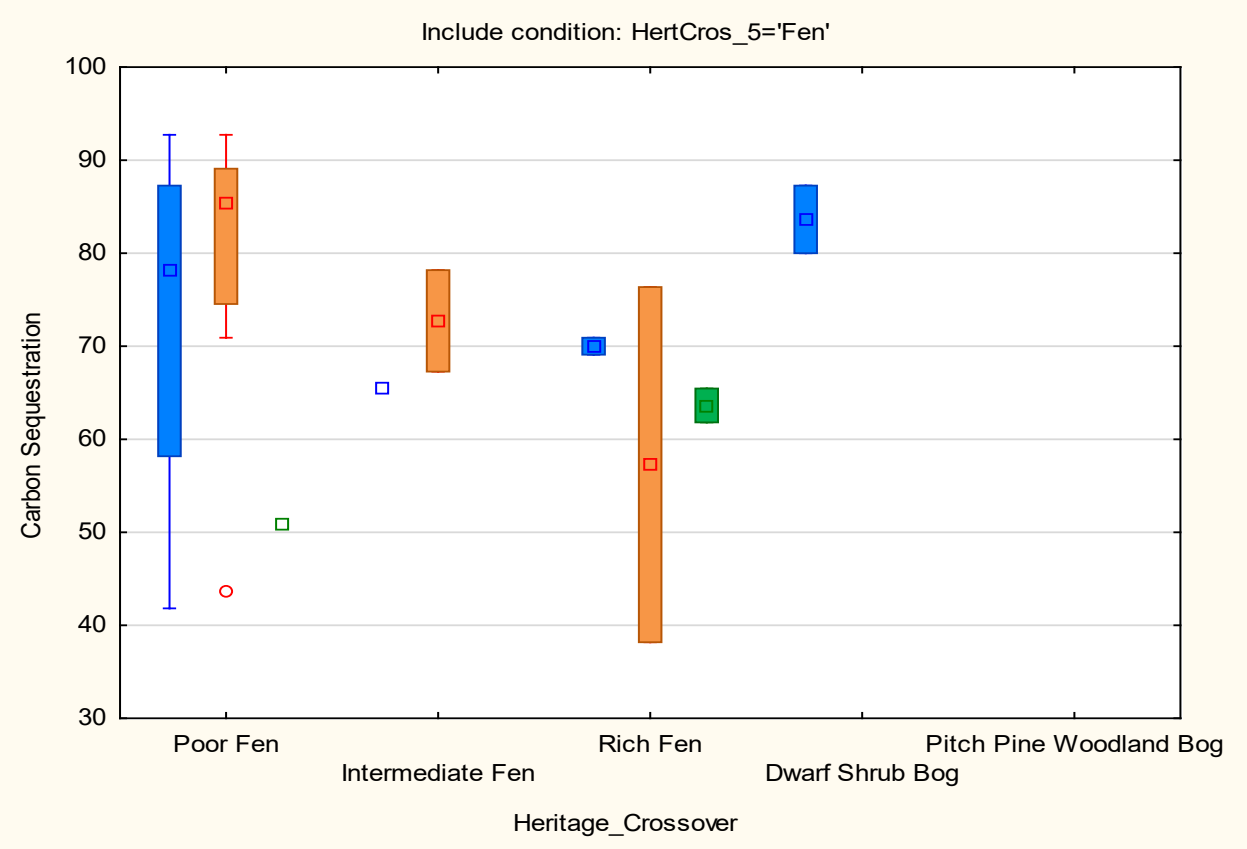

Include condition: HertCros_5='Fen'
Wildlife Habitat
90
80
70
60
50
40
30
20
10
0
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

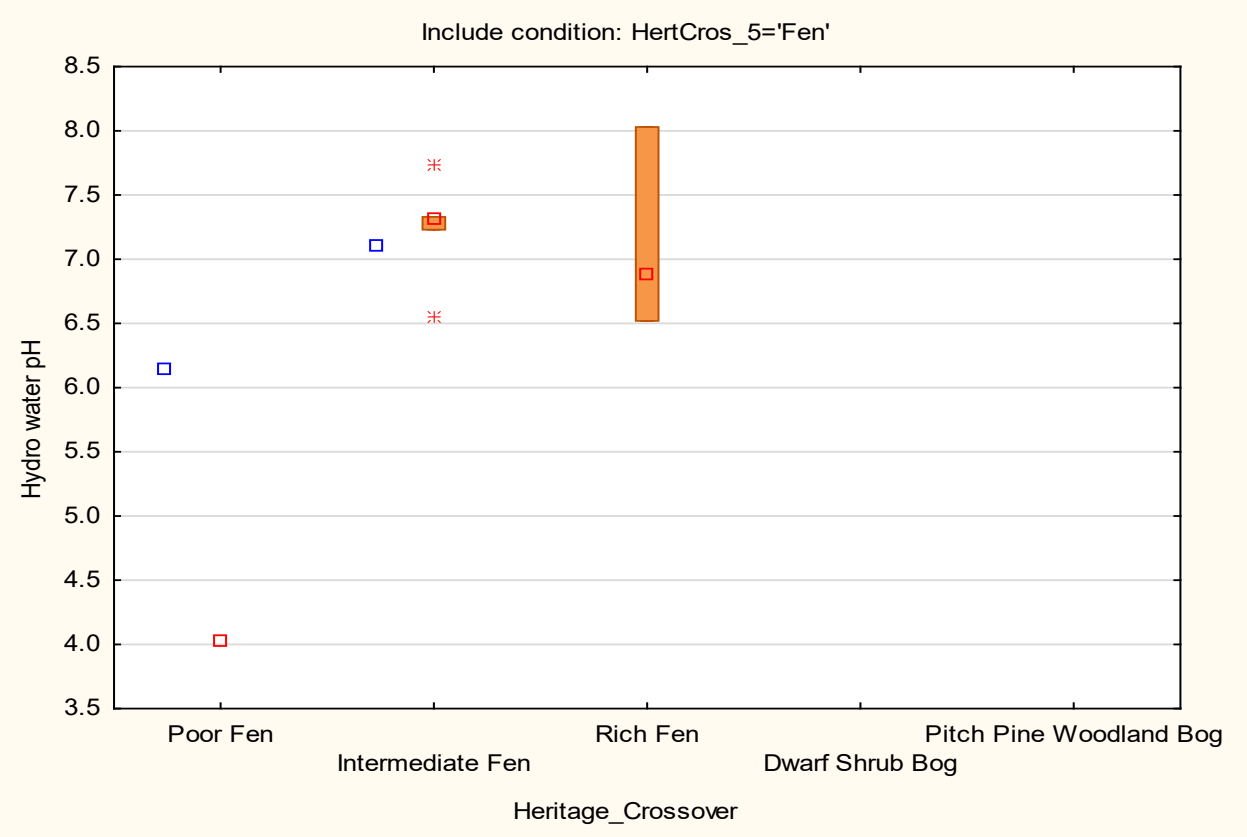
Appendix D.


Include condition: HertCros_5='Fen'
Aesthetics
100
90
80
70
60
50
40
30
20
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

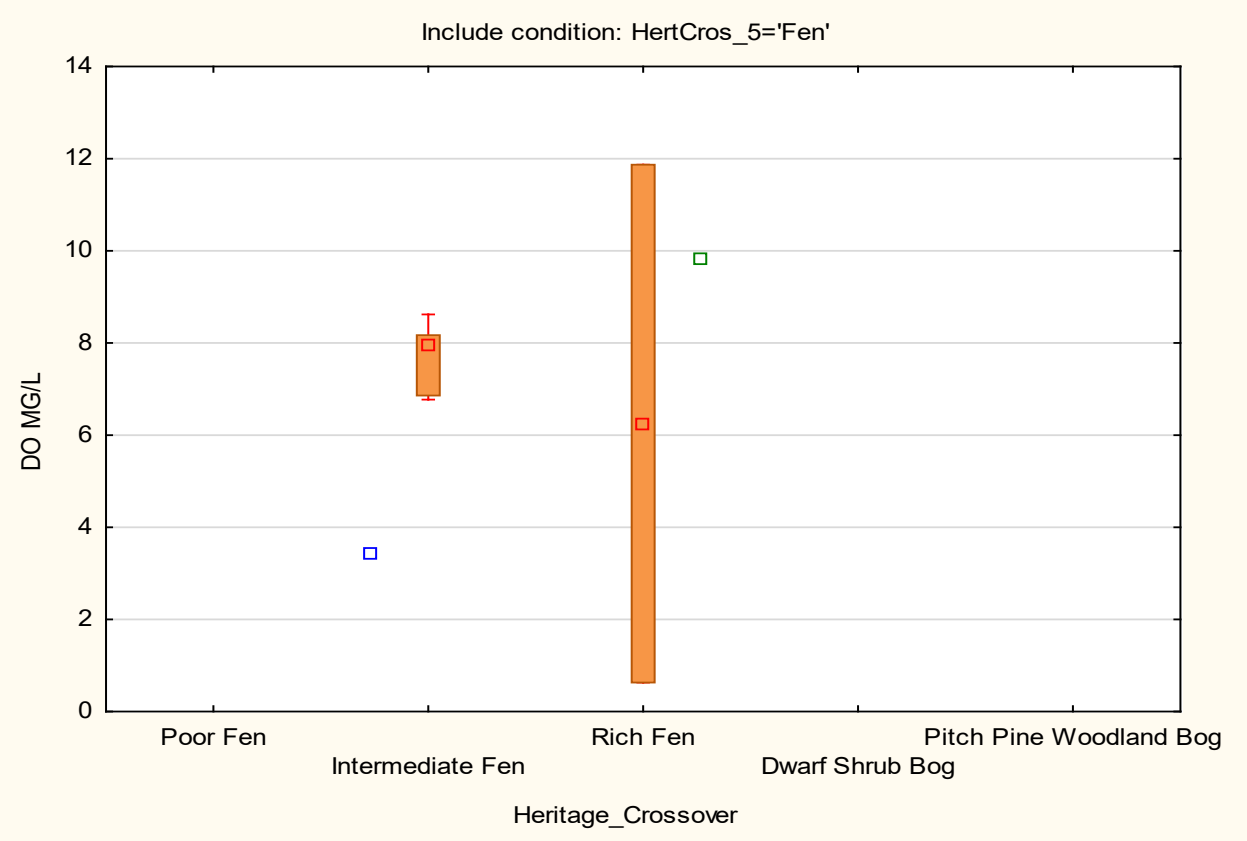

Include condition: HertCros_5='Fen'
Erosion Control
70
60
50
40
30
20
10
0
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

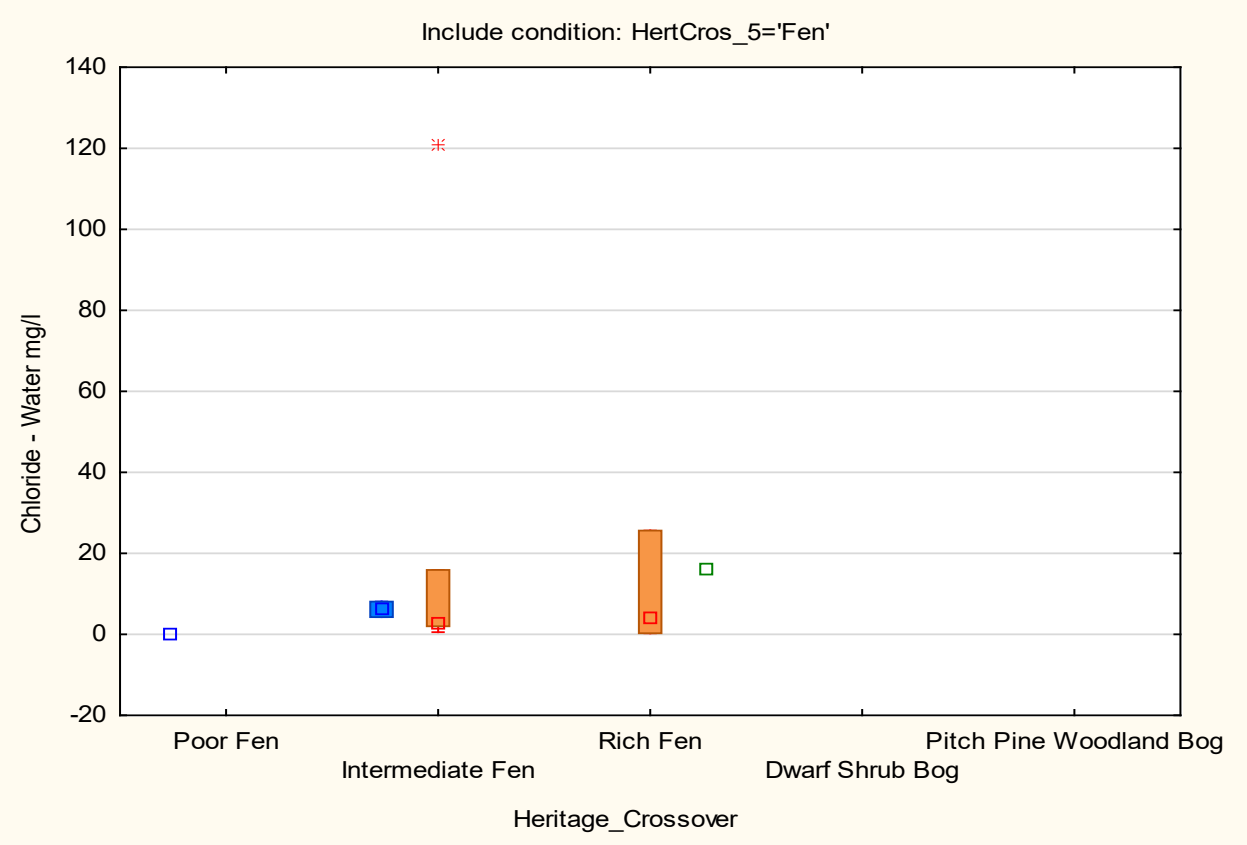
Appendix D.


Include condition: HertCros_5='Fen'
Carbon Sequestration
100
90
80
70
60
50
40
30
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

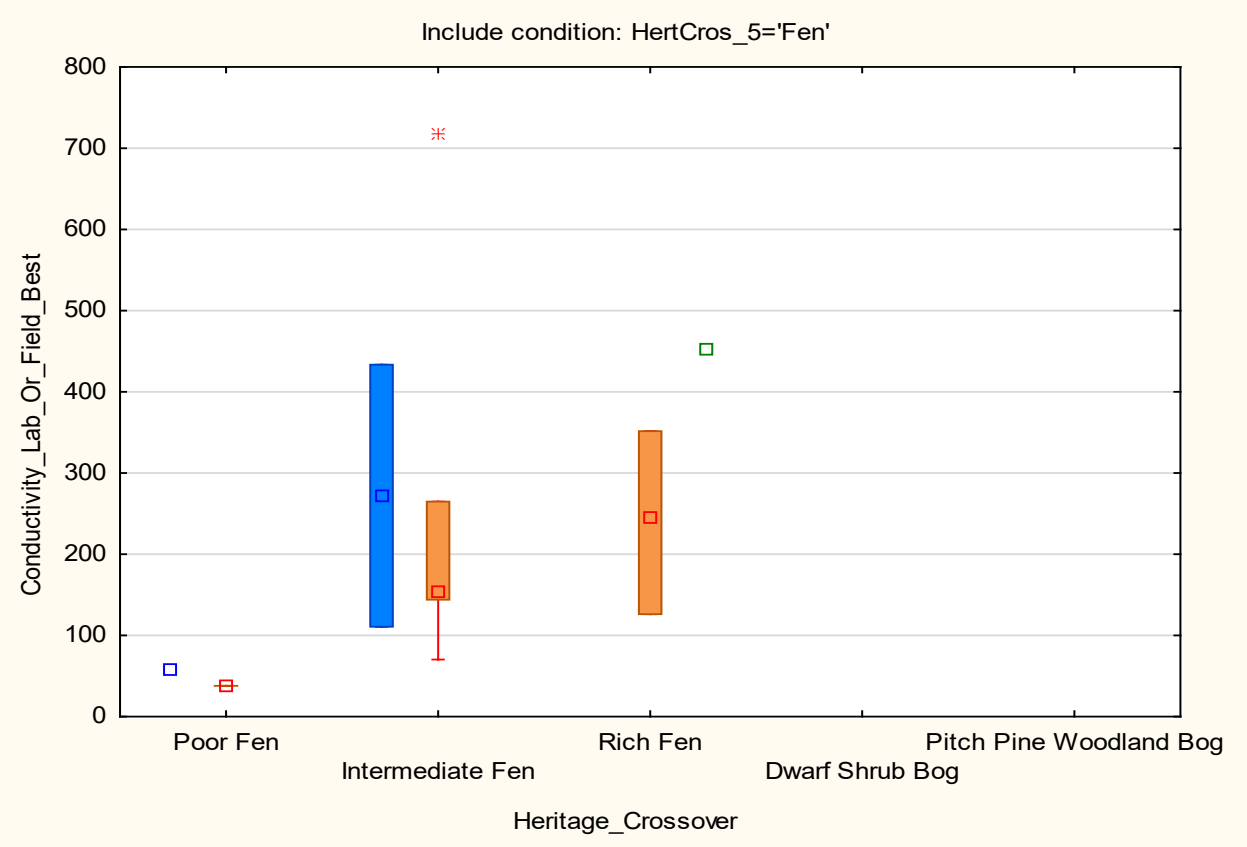

Include condition: HertCros_5='Fen'
Hydro water pH
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

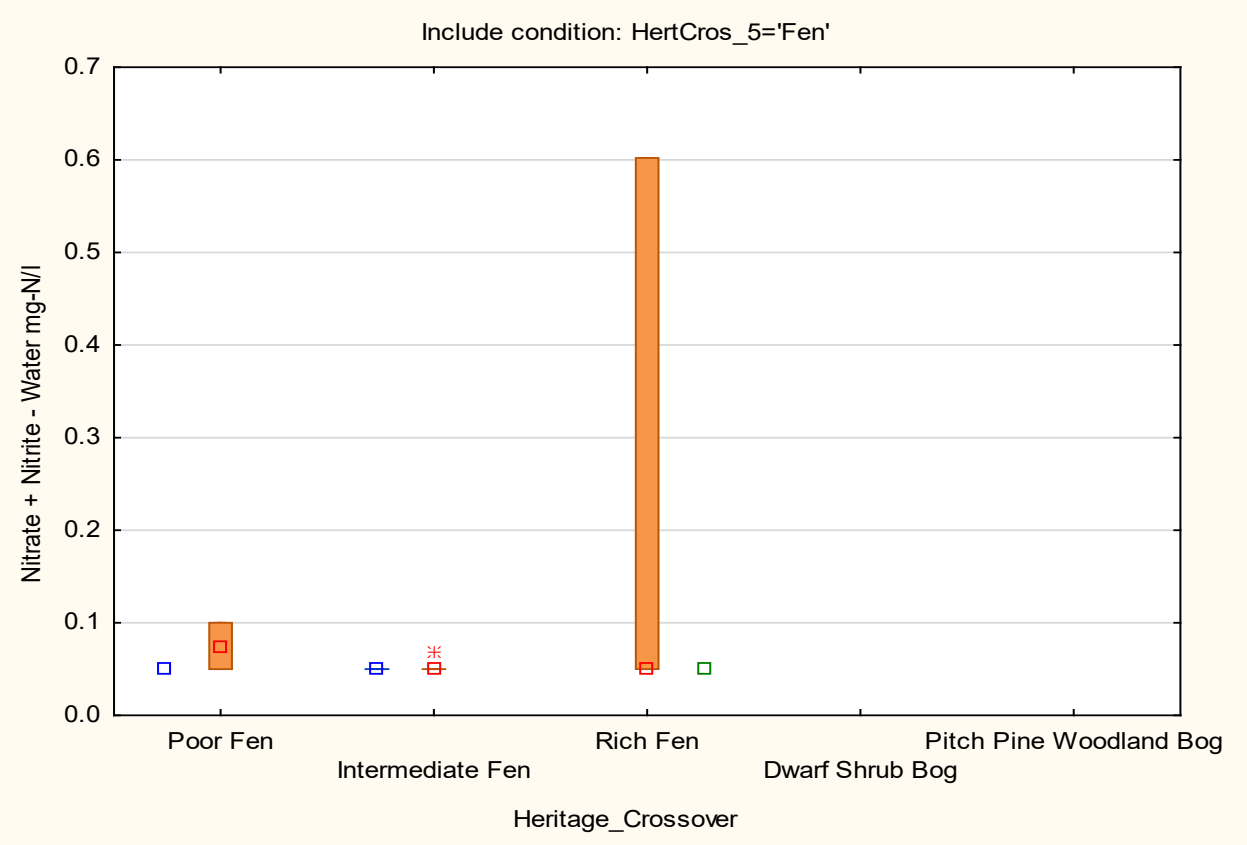
Appendix D.


Include condition: HertCros_5='Fen'
DO MG/L
14
12
10
8
6
4
2
0
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

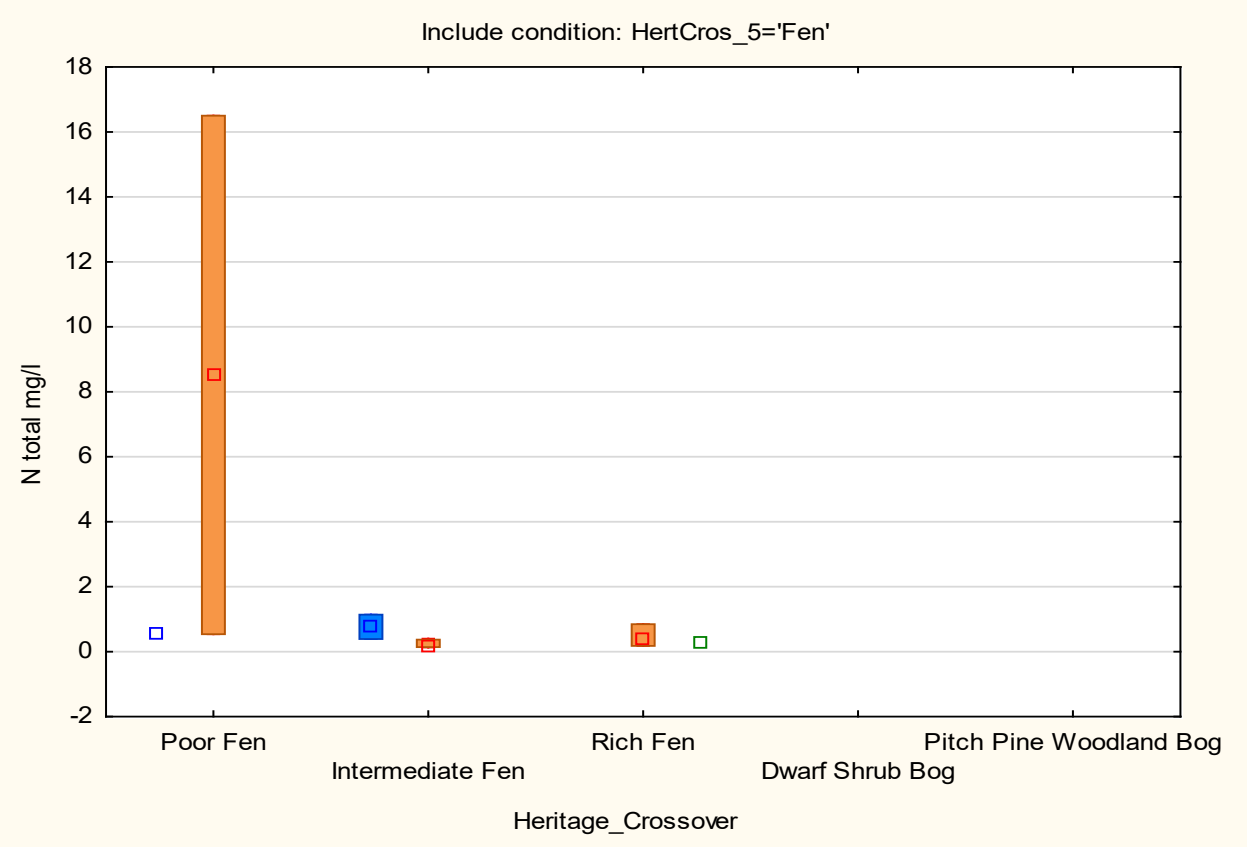

Include condition: HertCros_5='Fen'
Chloride - Water mg/l
140
120
100
80
60
40
20
0
-20
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

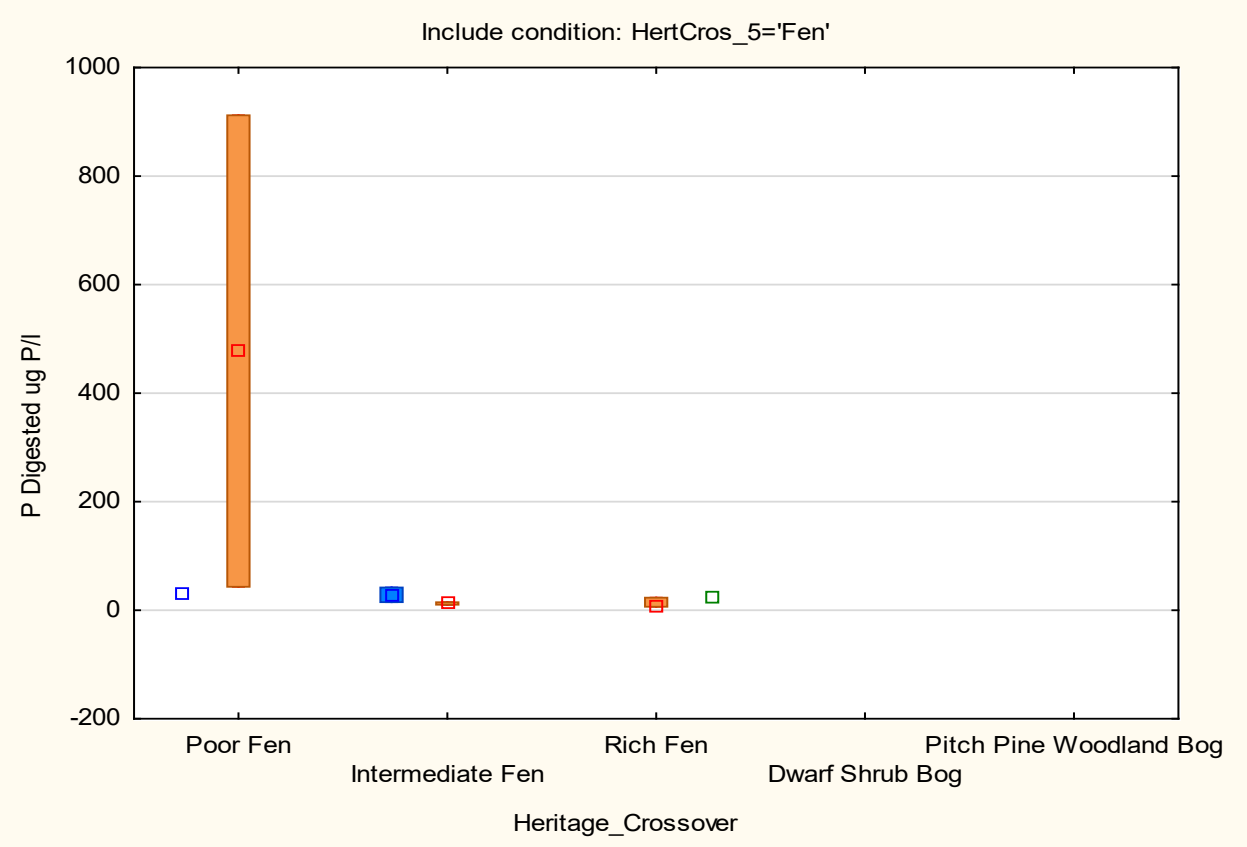
Appendix D.


Include condition: HertCros_5='Fen'
Conductivity_Lab_Or_Field_Best
800
700
600
500
400
300
200
100
0
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

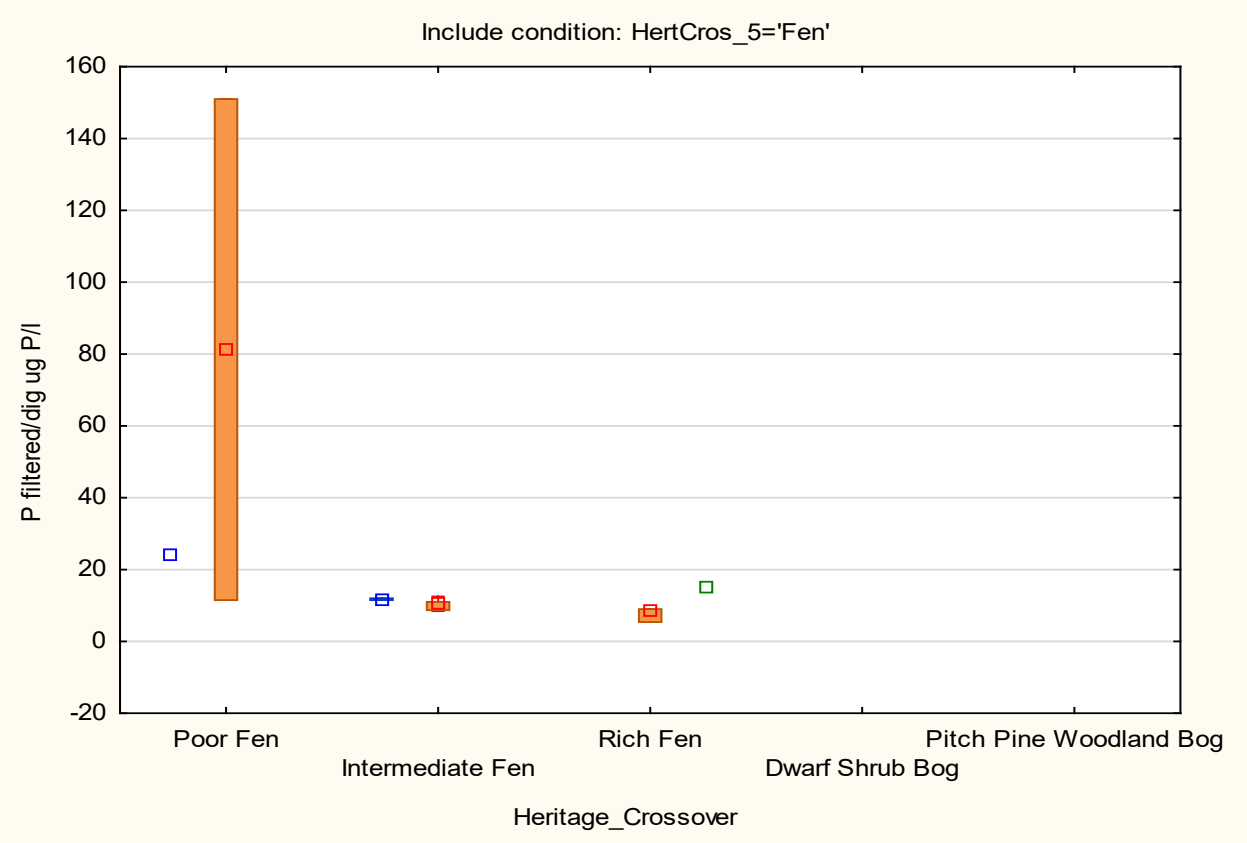

Include condition: HertCros_5='Fen'
Nitrate + Nitrite - Water mg-N/l
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

Appendix D.


Include condition: HertCros_5='Fen'
N total mg/l
18
16
14
12
10
8
6
4
2
0
-2
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover


Include condition: HertCros_5='Fen'
P Digested ug P/l
1000
800
600
400
200
0
-200
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

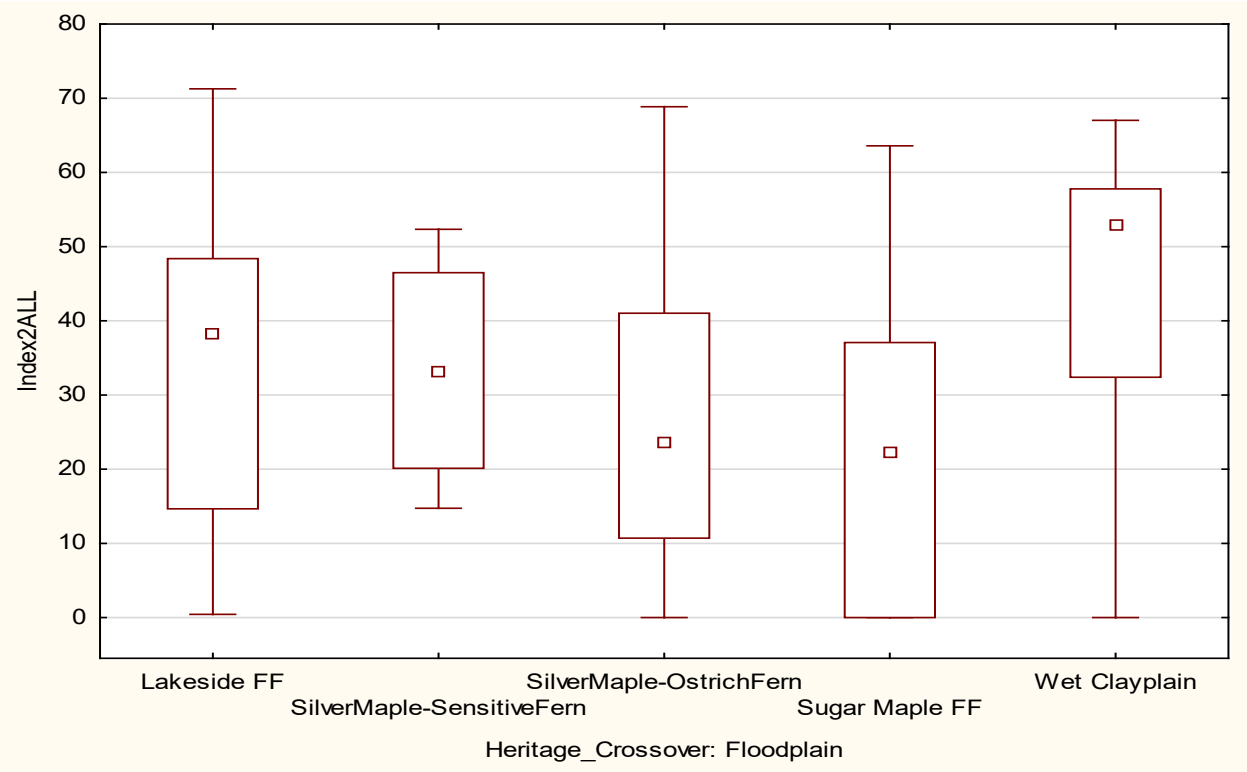
Appendix D.


Include condition: HertCros_5='Fen'
160
140
120
100
80
60
40
20
0
-20
P filtered/dig ug P/l
Poor Fen
Intermediate Fen
Rich Fen
Dwarf Shrub Bog
Pitch Pine Woodland Bog
Heritage_Crossover

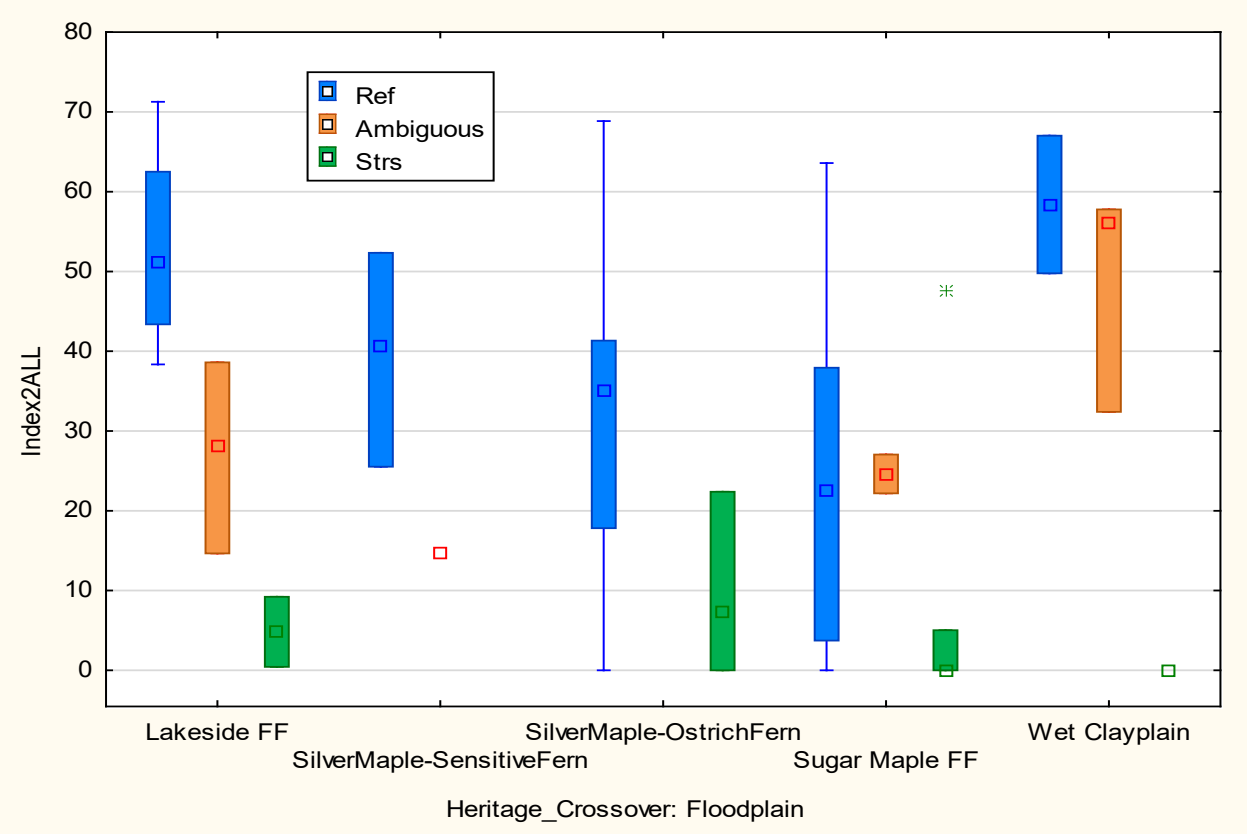
Appendix D.

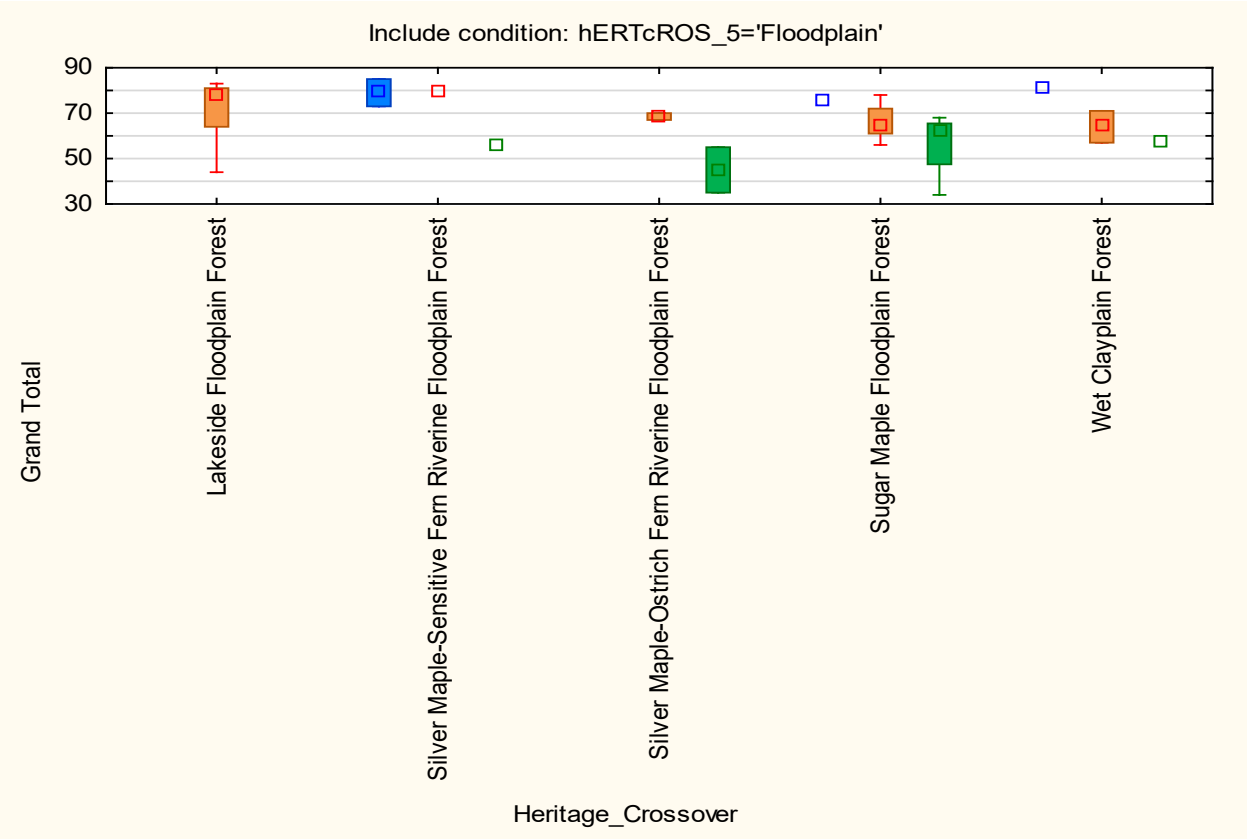
Appendix D

Section D.3 Characteristics among Floodplain wetland types

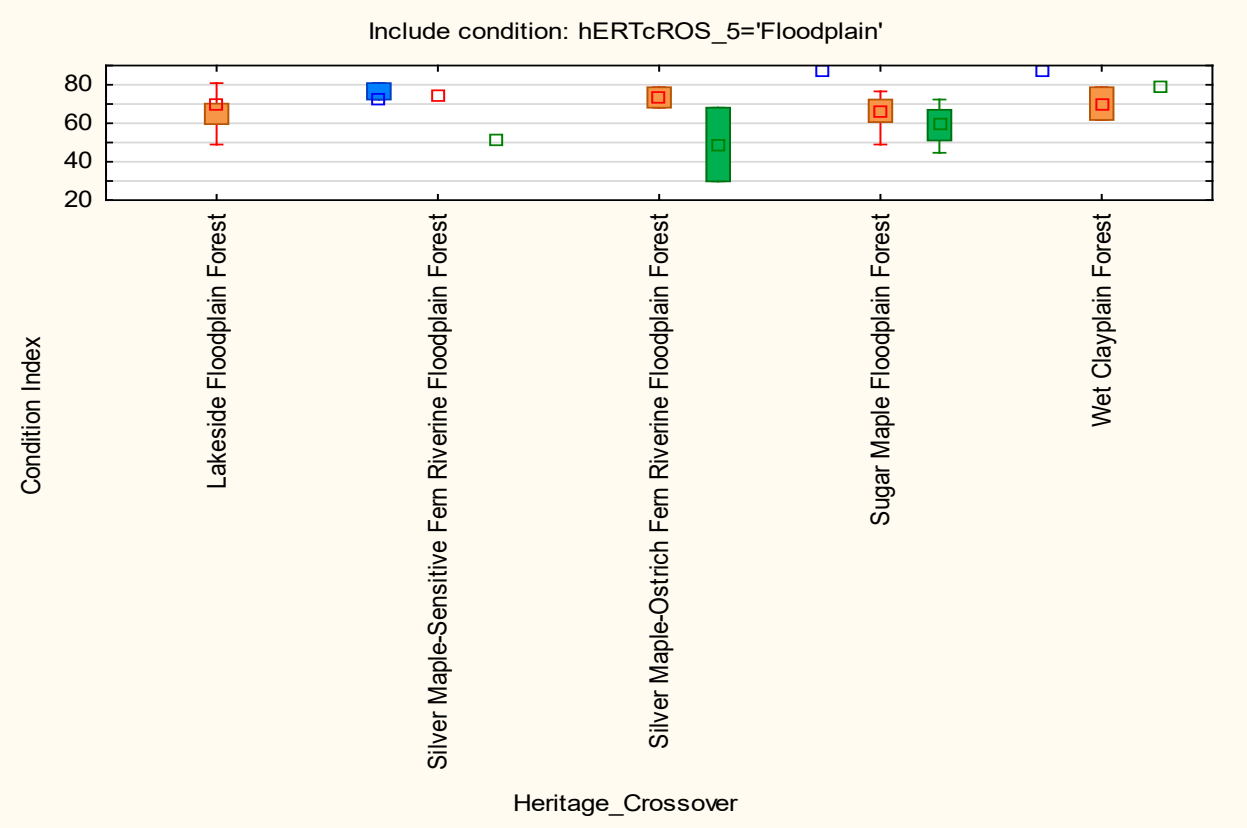


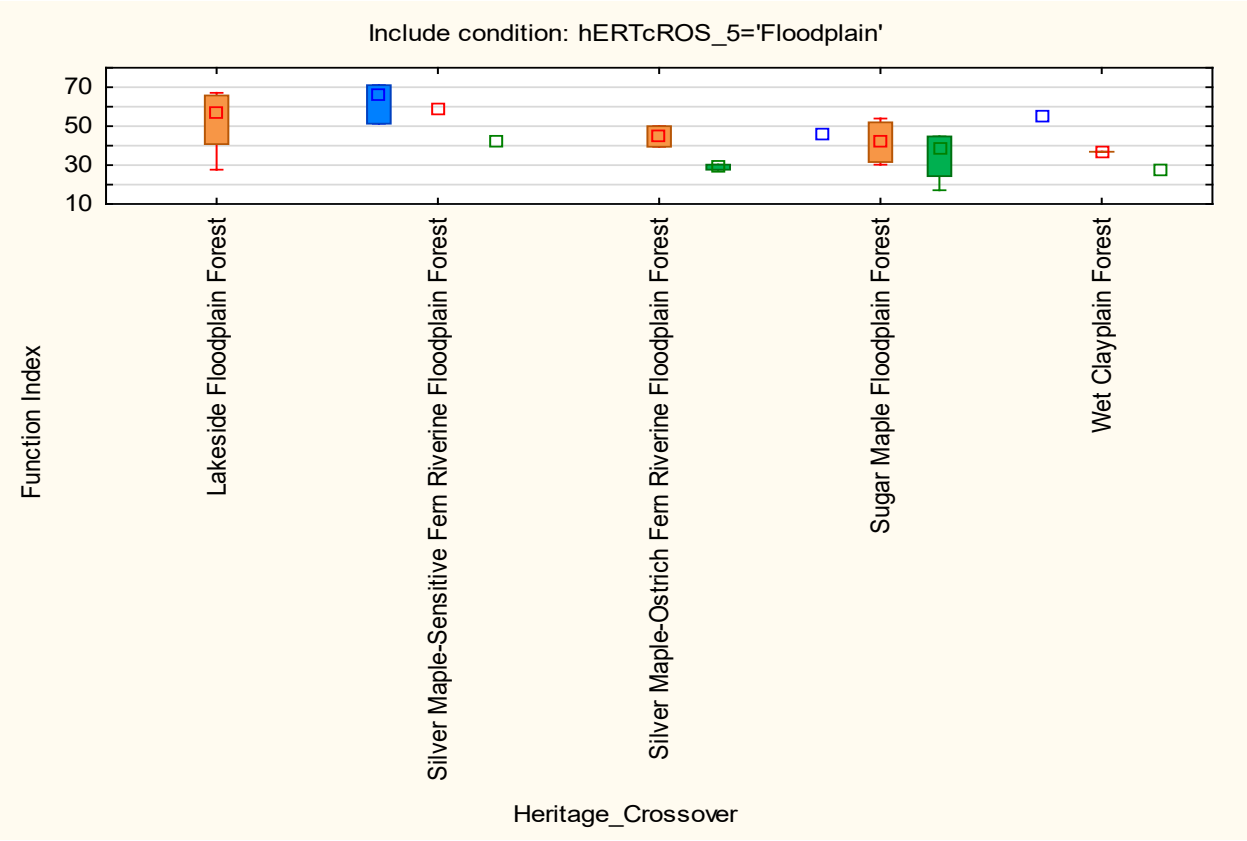
Appendix D.


Ref
Ambiguous
Strs
Index2ALL
80
70
60
50
40
30
20
10
0
Lakeside FF
SilverMaple-SensitiveFern
SilverMaple-OstrichFern
Sugar Maple FF
Wet Clayplain
Heritage_Crossover: Floodplain

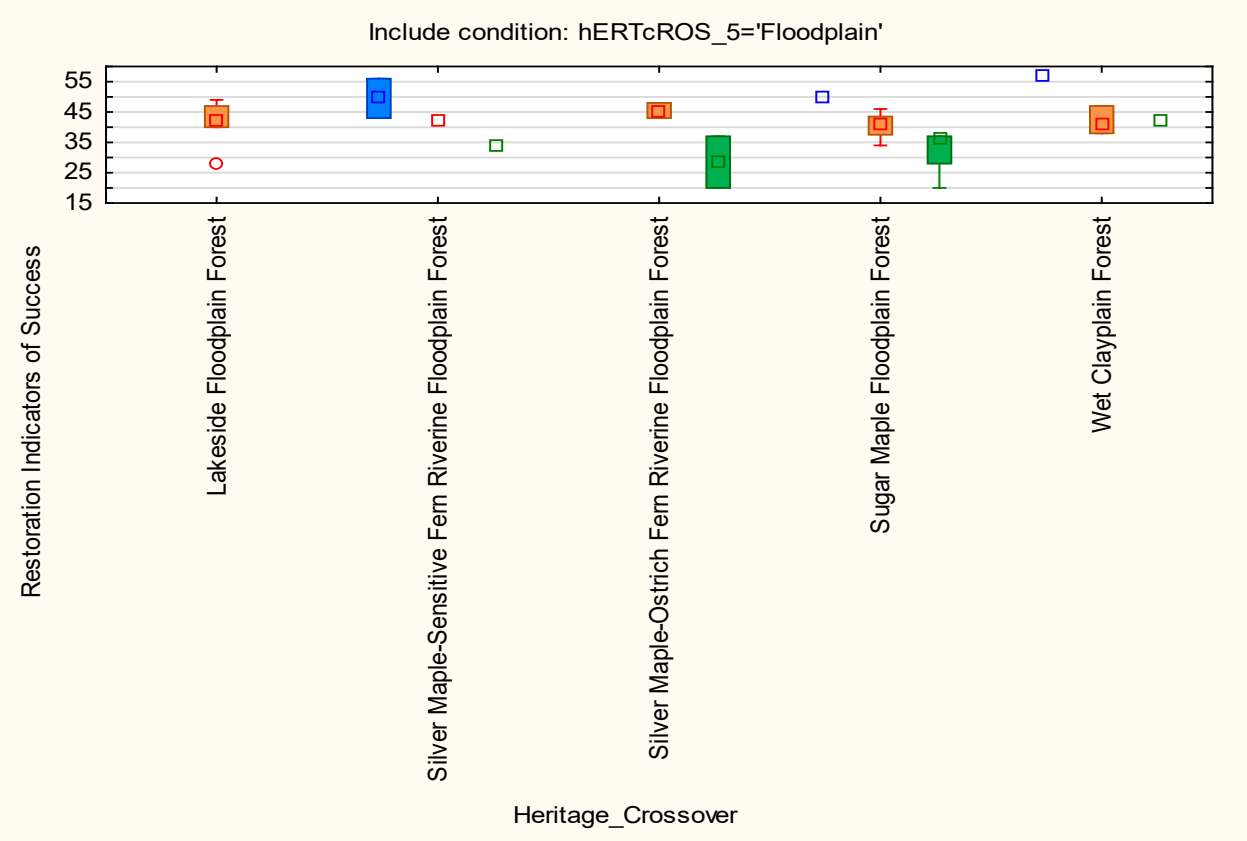

Include condition: hERTcROS_5='Floodplain'
Grand Total
90
70
50
30
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

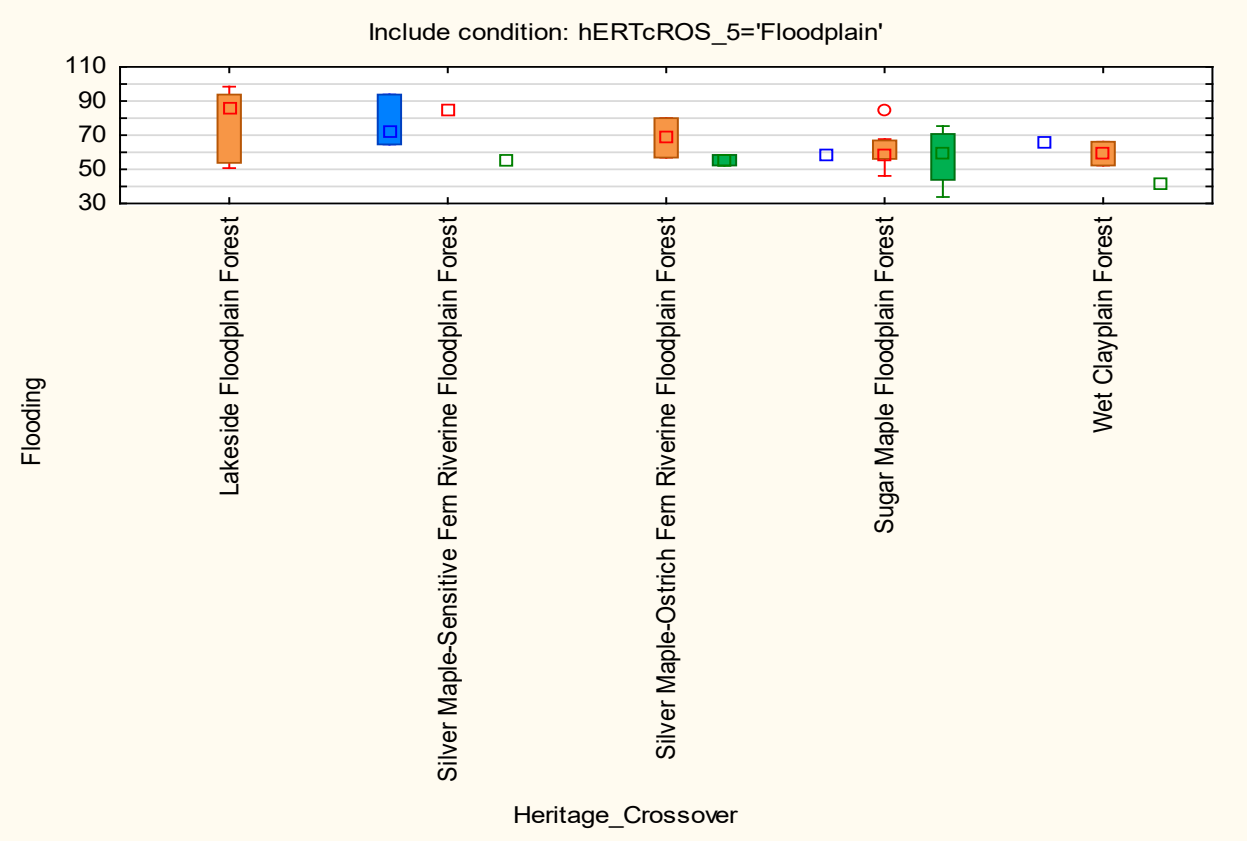
Appendix D.


Include condition: hERTcROS_5='Floodplain'
80
60
40
20
Condition Index
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

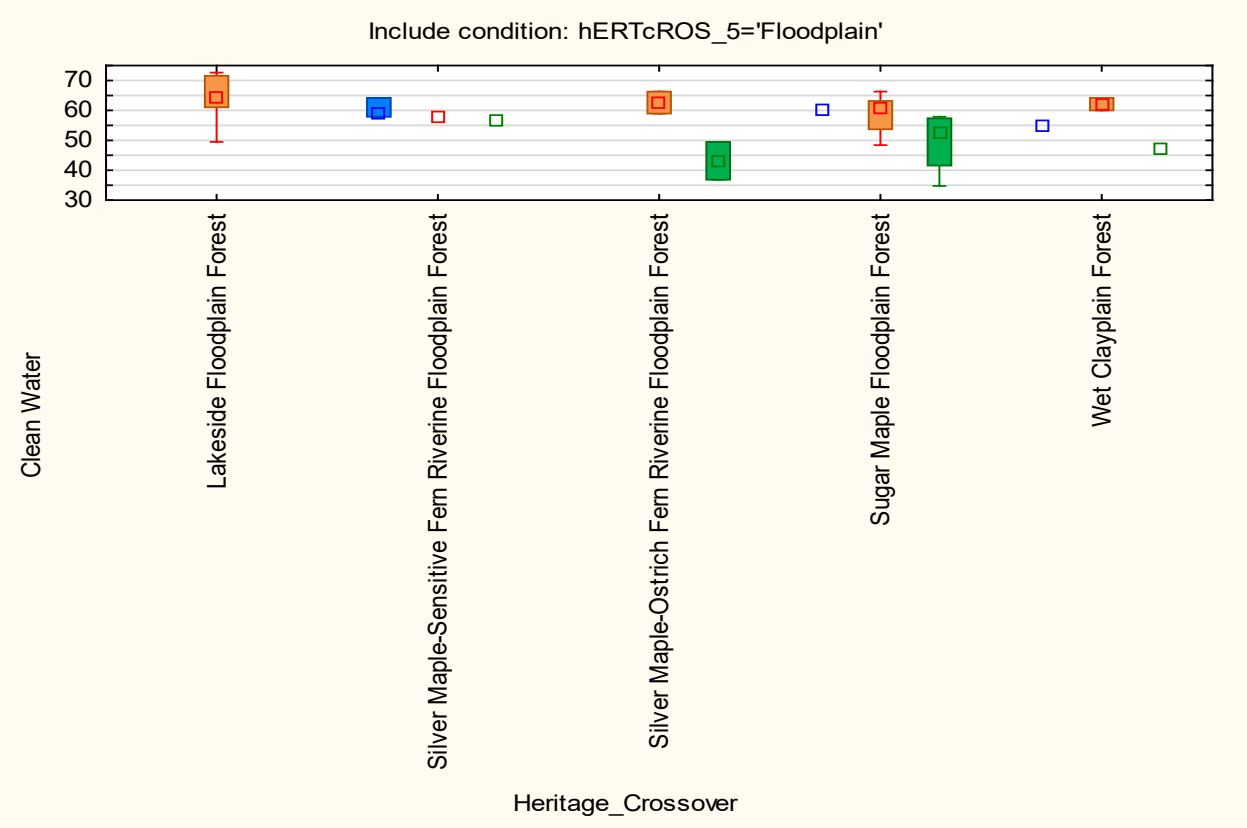

Include condition: hERTcROS_5='Floodplain'
70
50
30
10
Function Index
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

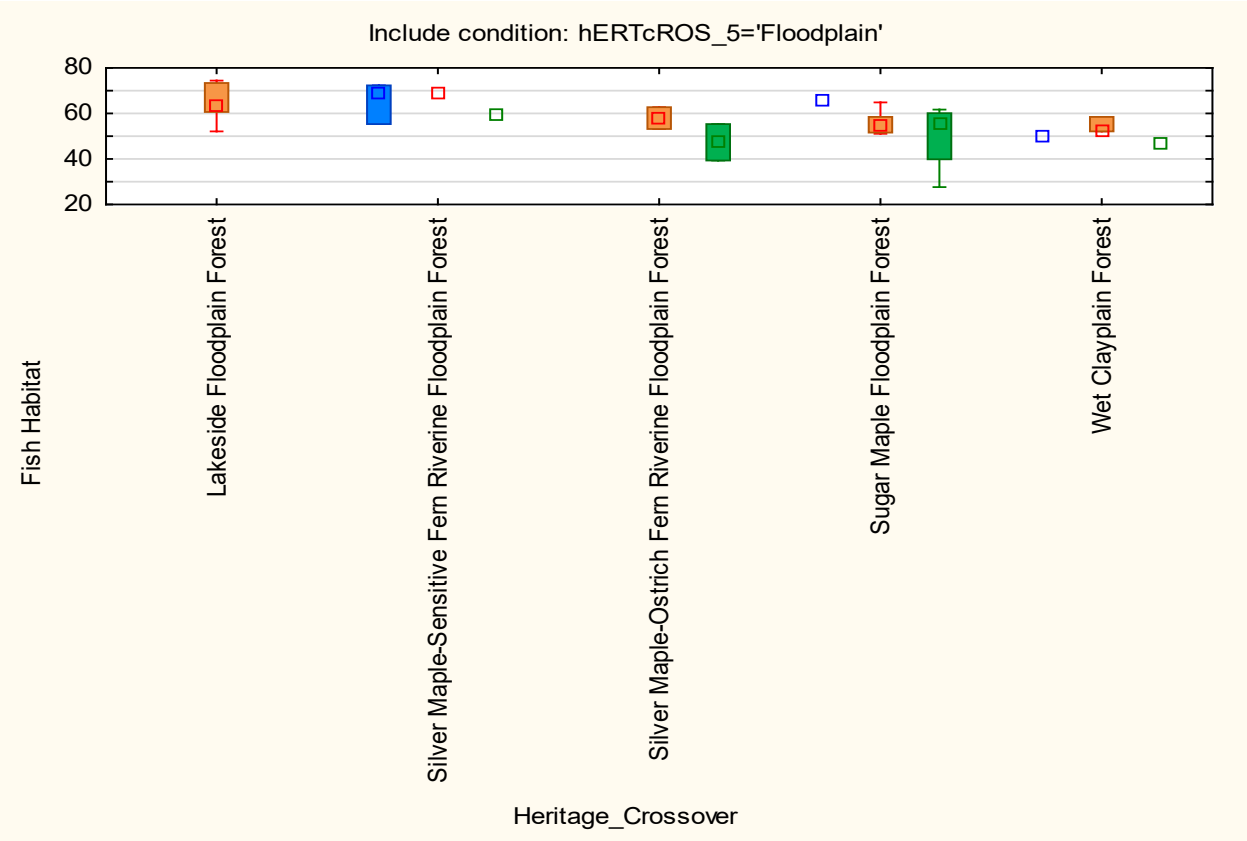
Appendix D.


Include condition: hERTcROS_5='Floodplain'
Restoration Indicators of Success
55
45
35
25
15
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

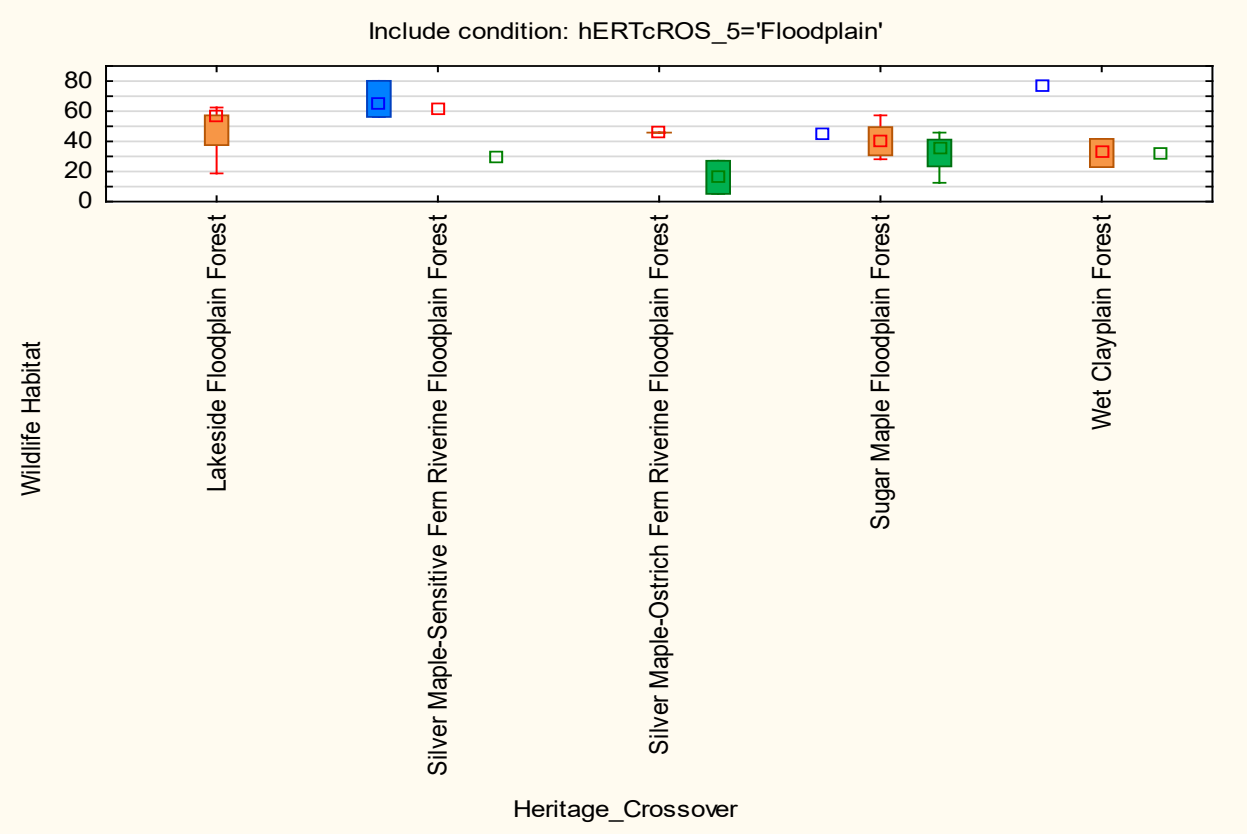

Include condition: hERTcROS_5='Floodplain'
Flooding
110
90
70
50
30
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

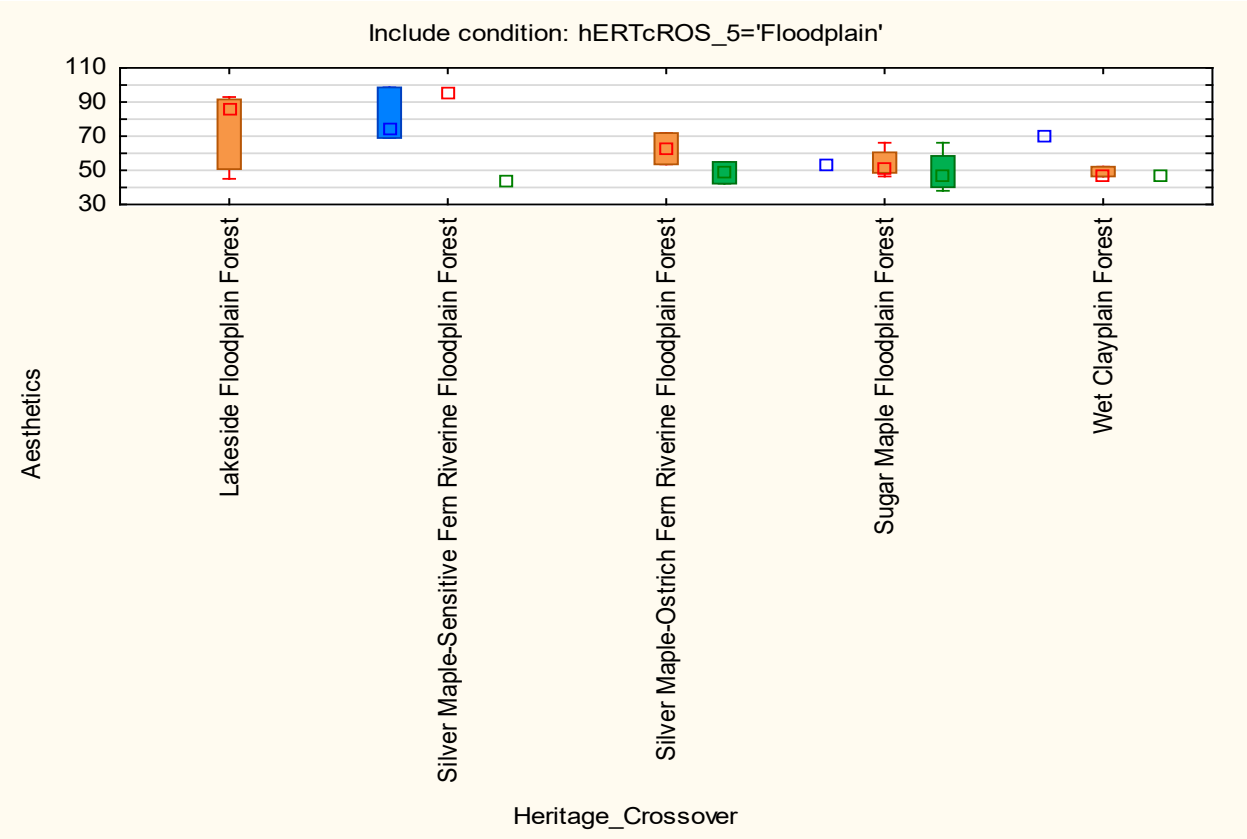
Appendix D.


Include condition: hERTcROS_5='Floodplain'
70
60
50
40
30
Clean Water
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

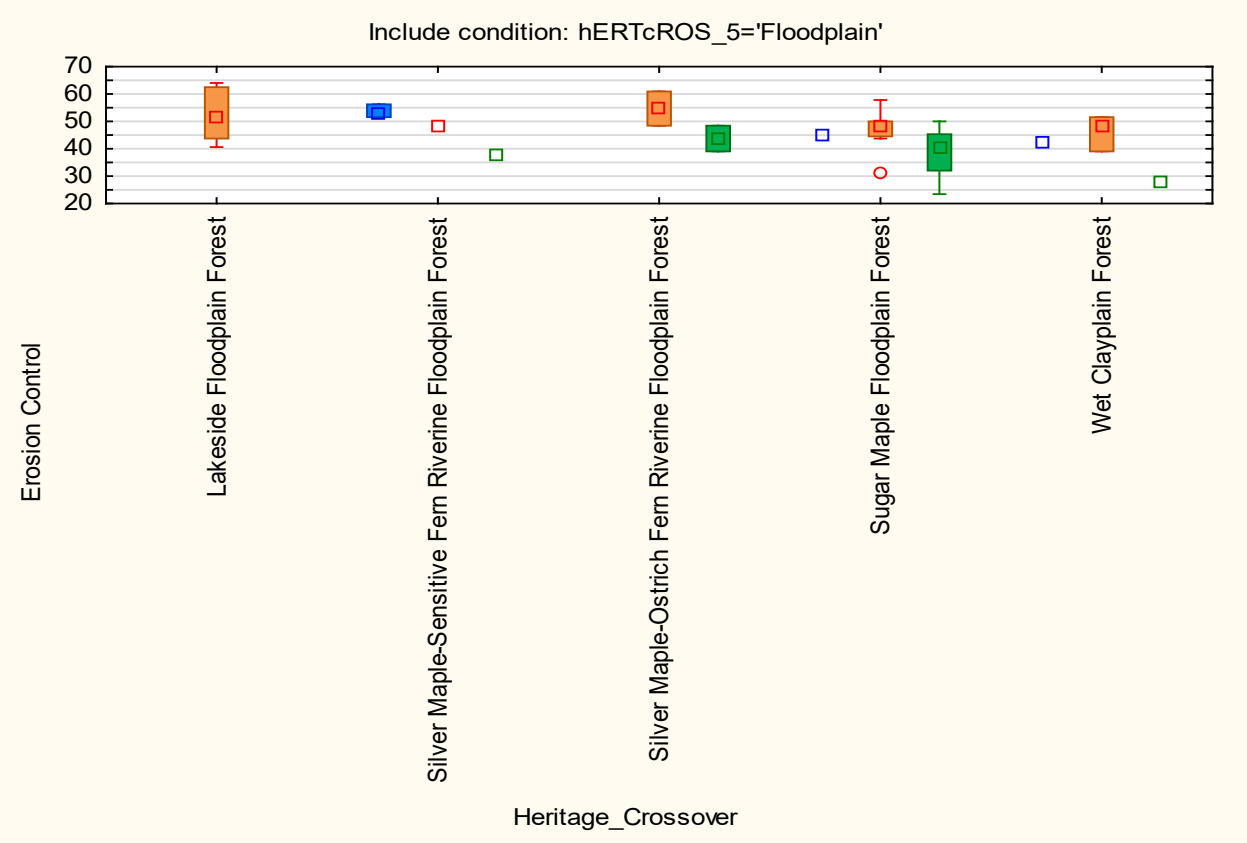

Include condition: hERTcROS_5='Floodplain'
80
60
40
20
Fish Habitat
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

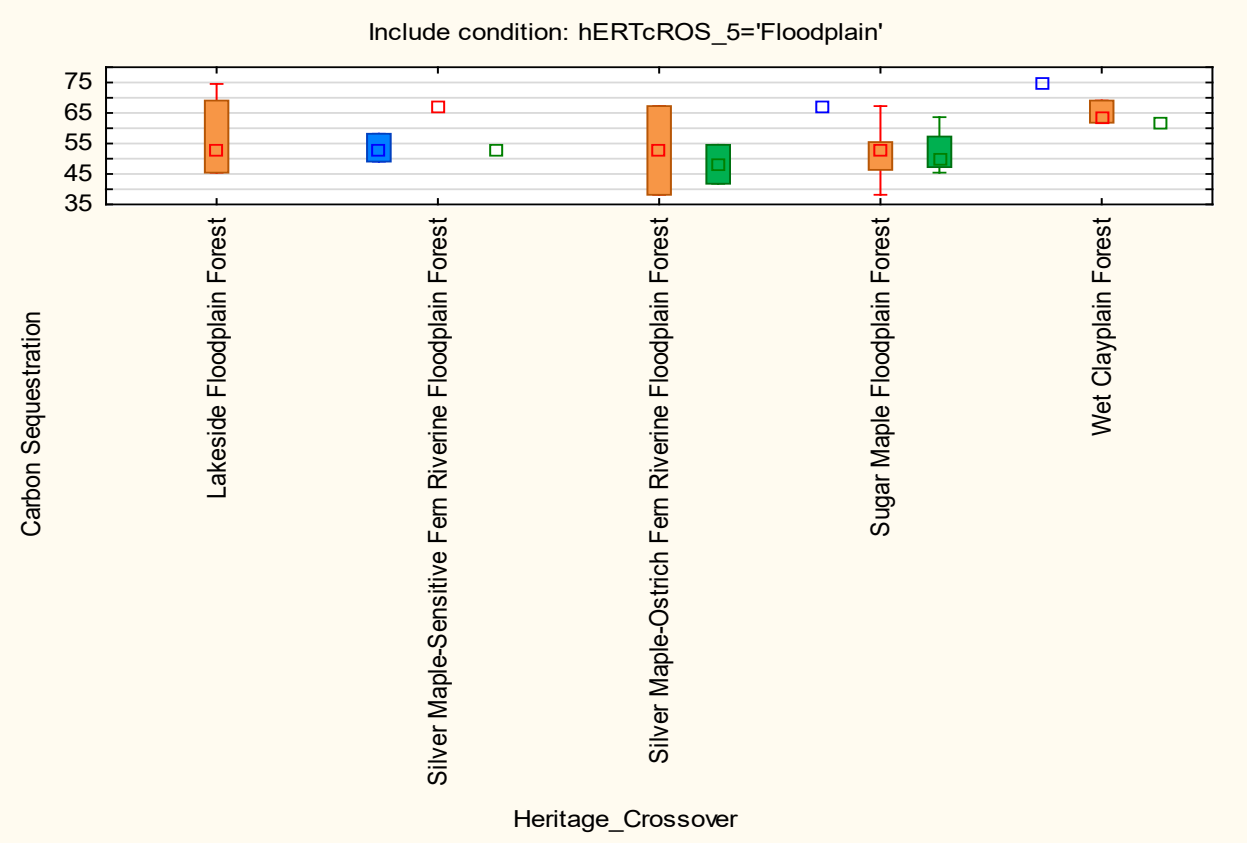
Appendix D.


Include condition: hERTcROS_5='Floodplain'
Wildlife Habitat
80
60
40
20
0
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

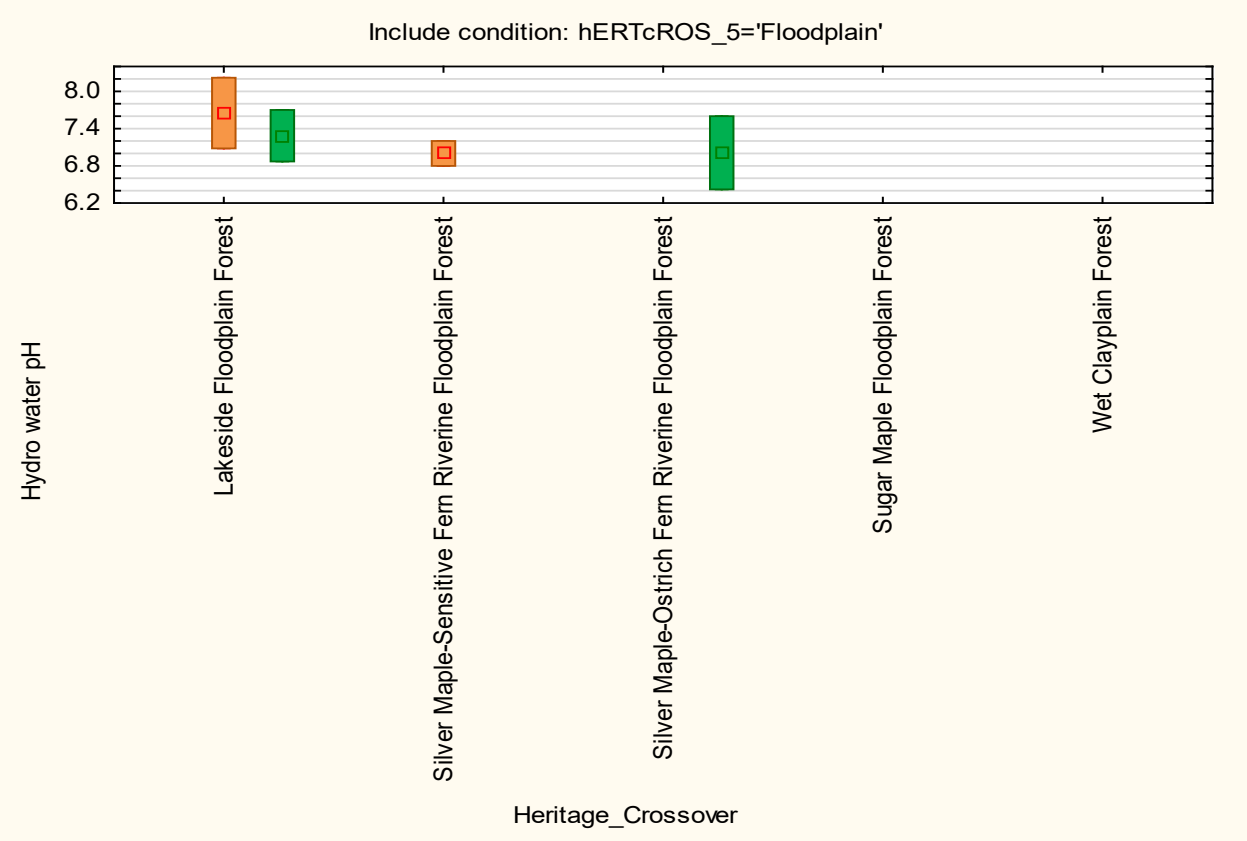

Include condition: hERTcROS_5='Floodplain'
Aesthetics
110
90
70
50
30
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

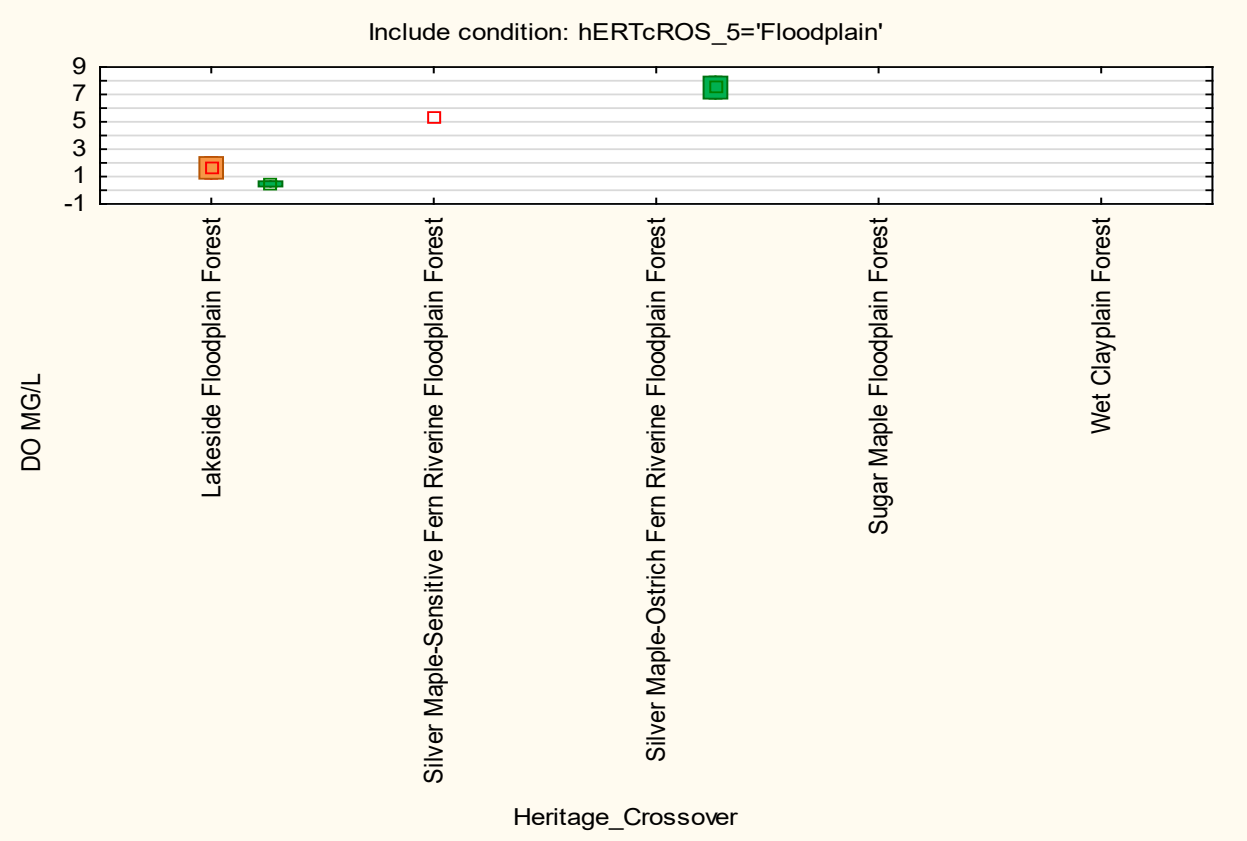
Appendix D.


Include condition: hERTcROS_5='Floodplain'
Erosion Control
70
60
50
40
30
20
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

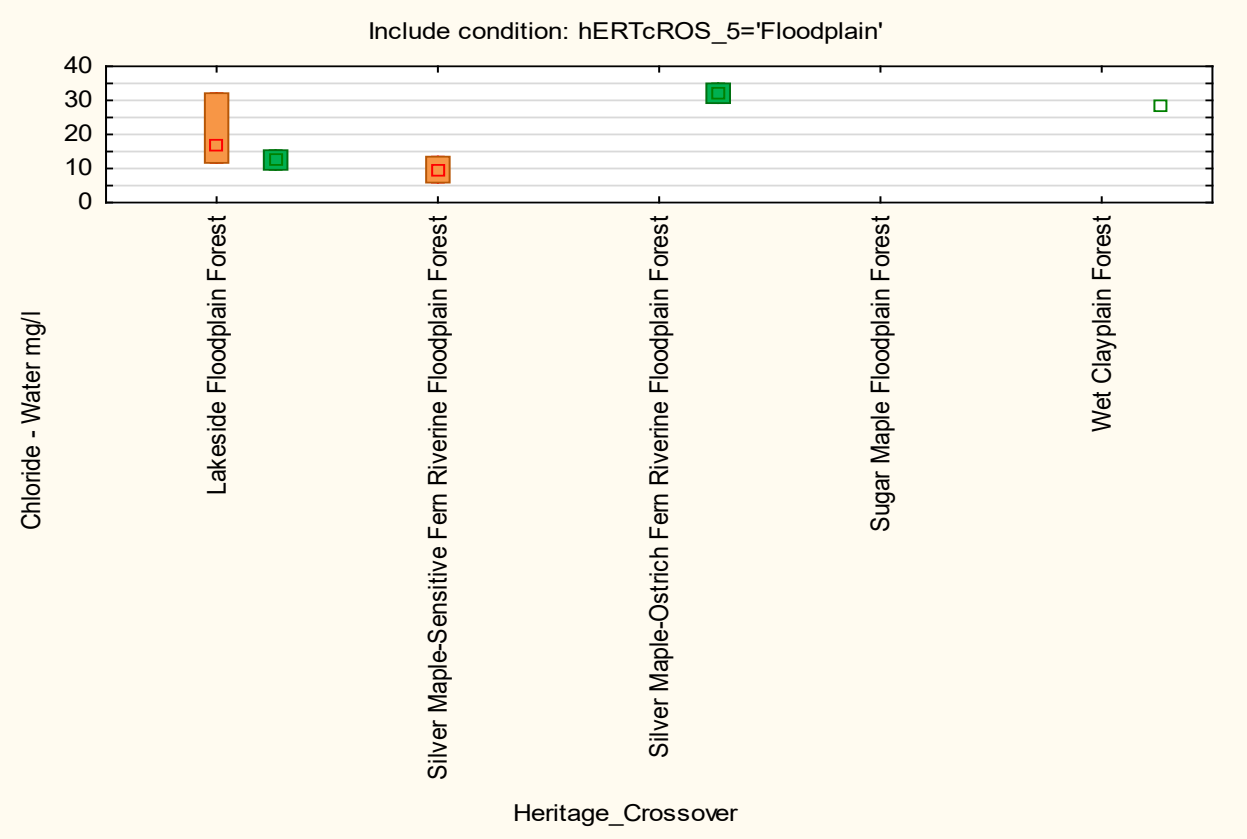

Include condition: hERTcROS_5='Floodplain'
Carbon Sequestration
75
65
55
45
35
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

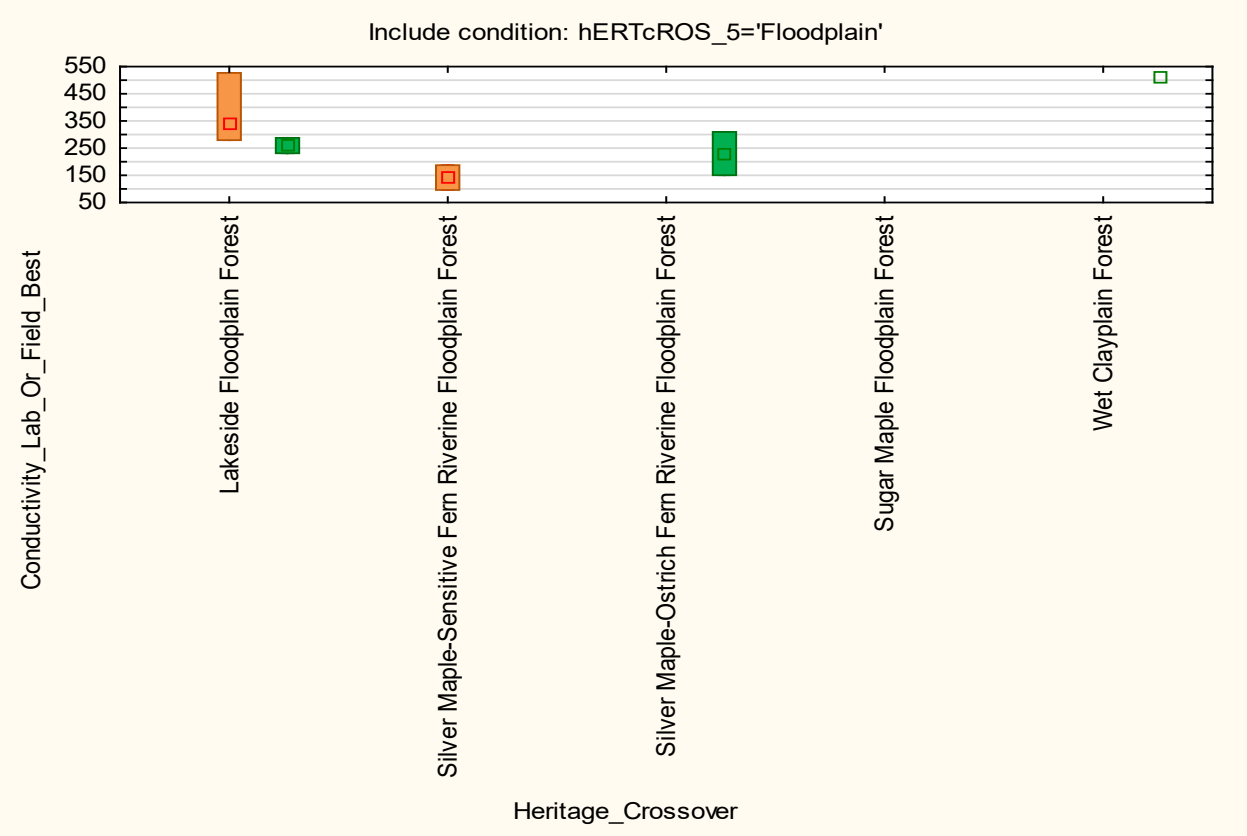
Appendix D.


Include condition: hERTcROS_5='Floodplain'
8.0
7.4
6.8
6.2
Hydro water pH
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

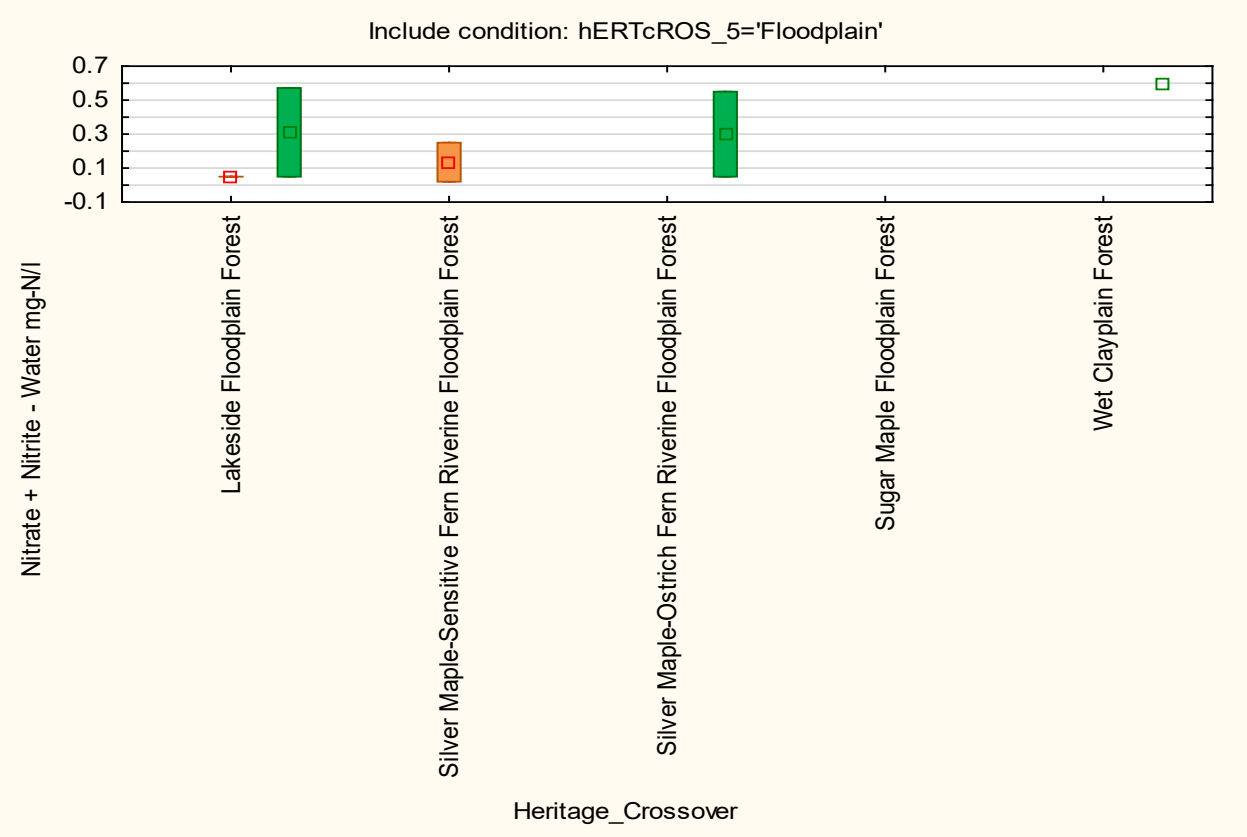

Include condition: hERTcROS_5='Floodplain'
9
7
5
3
1
-1
DO MG/L
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

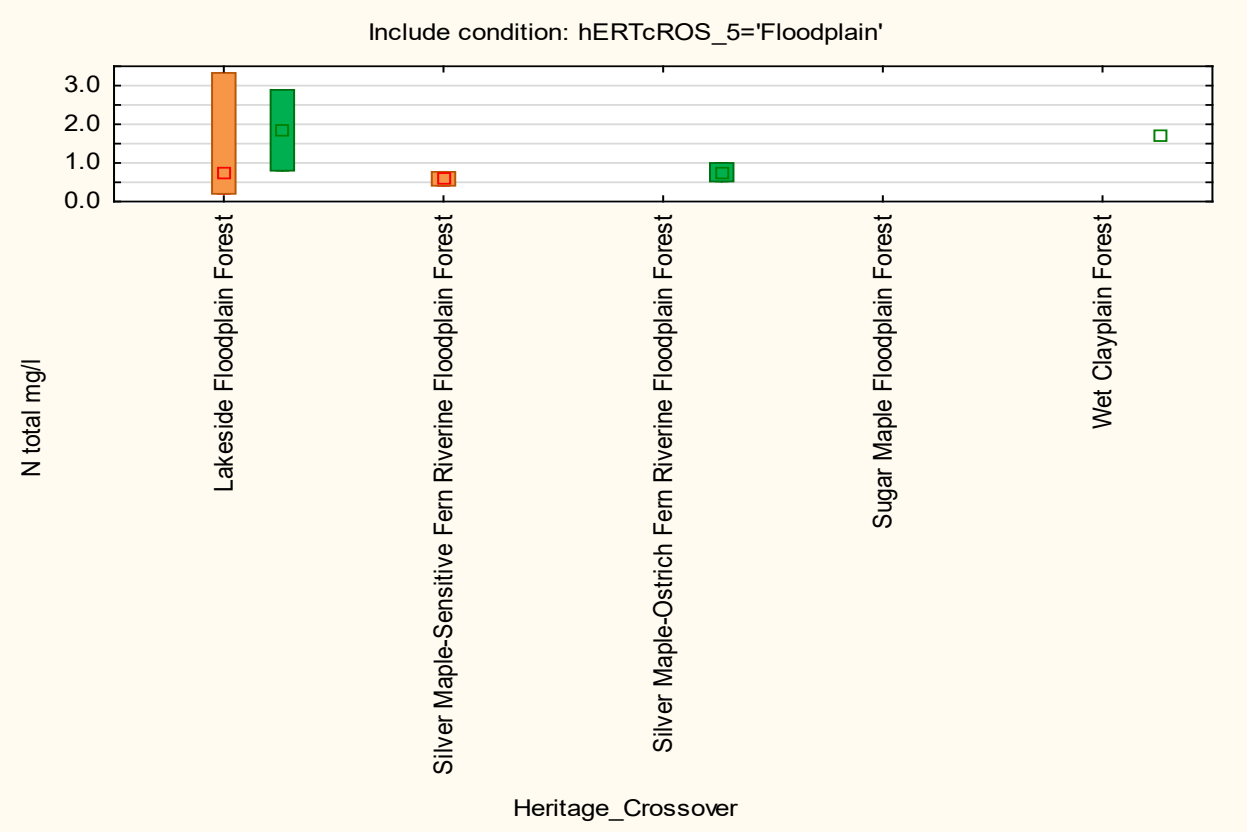
Appendix D.


Include condition: hERTcROS_5='Floodplain'
Chloride - Water mg/l
40
30
20
10
0
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

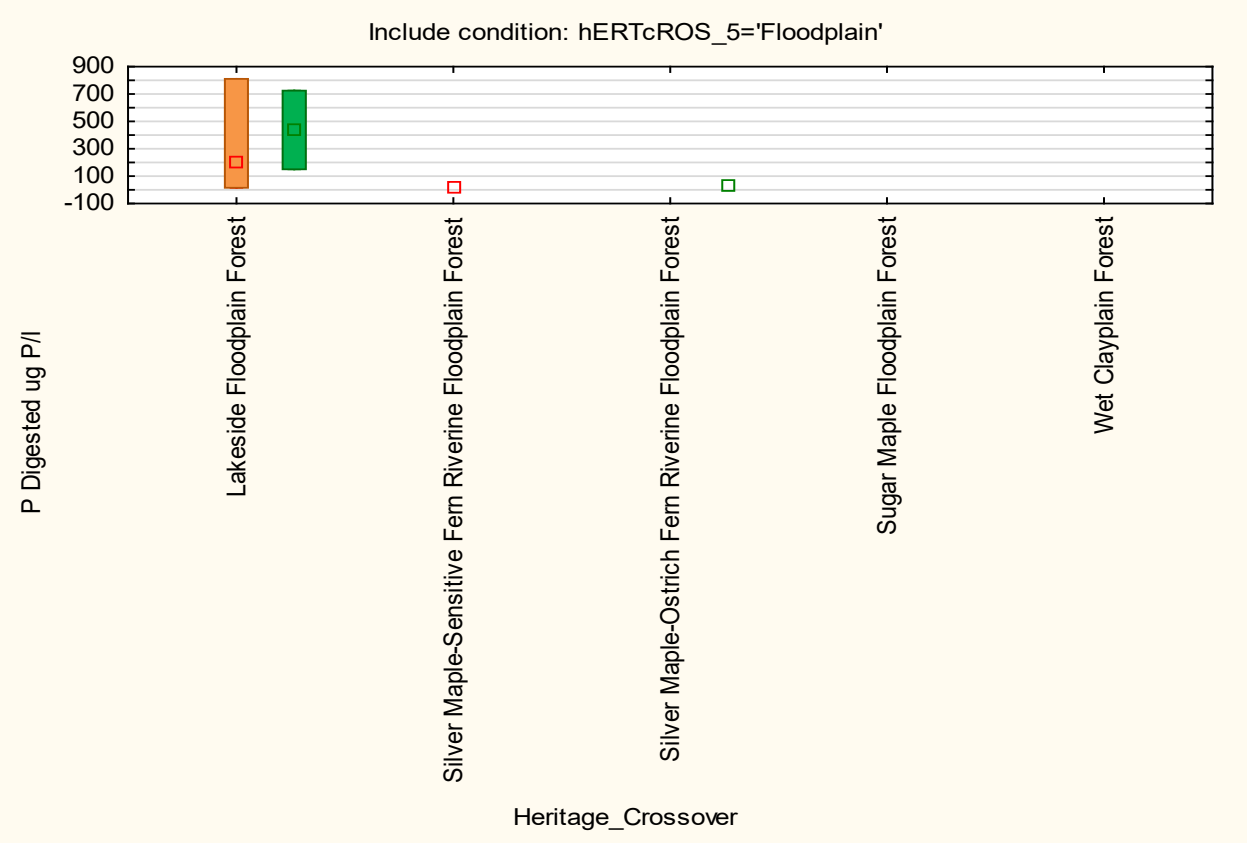

Include condition: hERTcROS_5='Floodplain'
Conductivity_Lab_Or_Field_Best
550
450
350
250
150
50
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

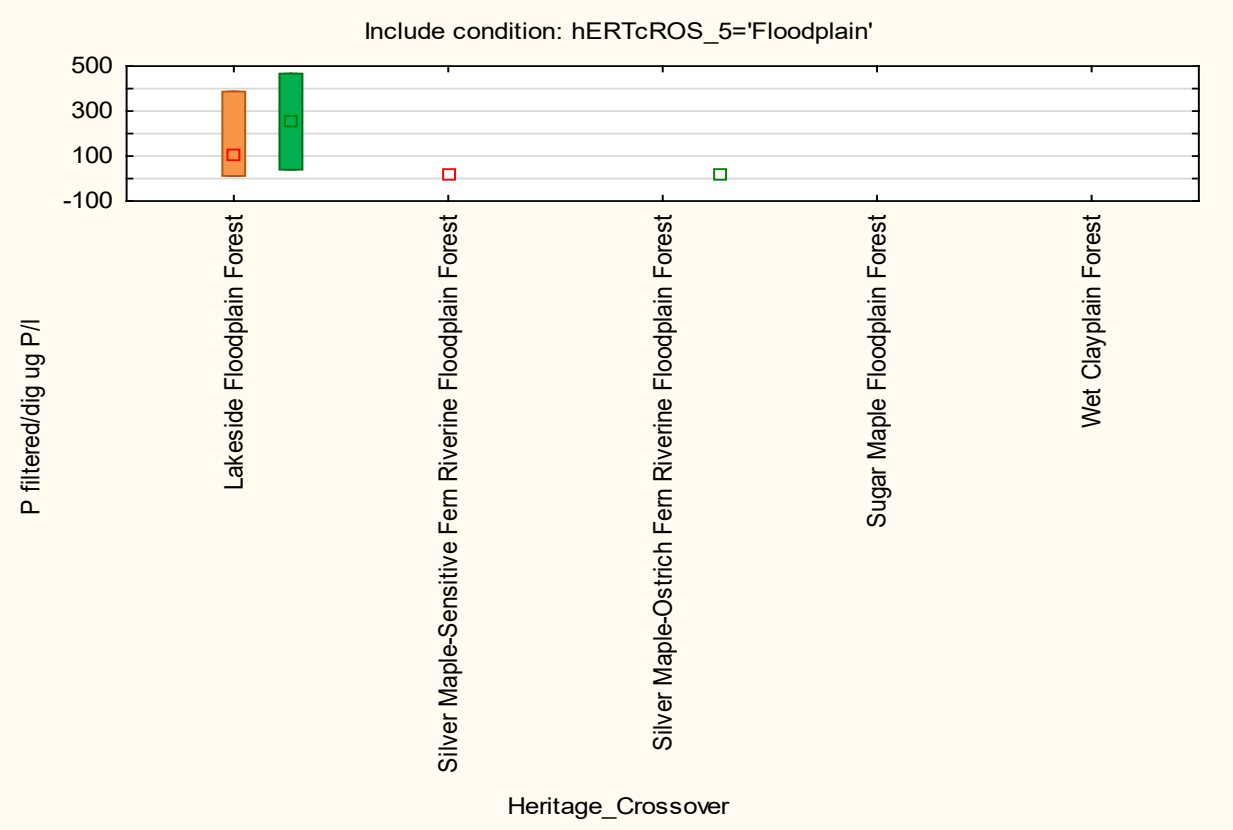
Appendix D.


Include condition: hERTcROS_5='Floodplain'
0.7
0.5
0.3
0.1
-0.1
Nitrate + Nitrite - Water mg-N/l
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover


Include condition: hERTcROS_5='Floodplain'
3.0
2.0
1.0
0.0
N total mg/l
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

Appendix D.

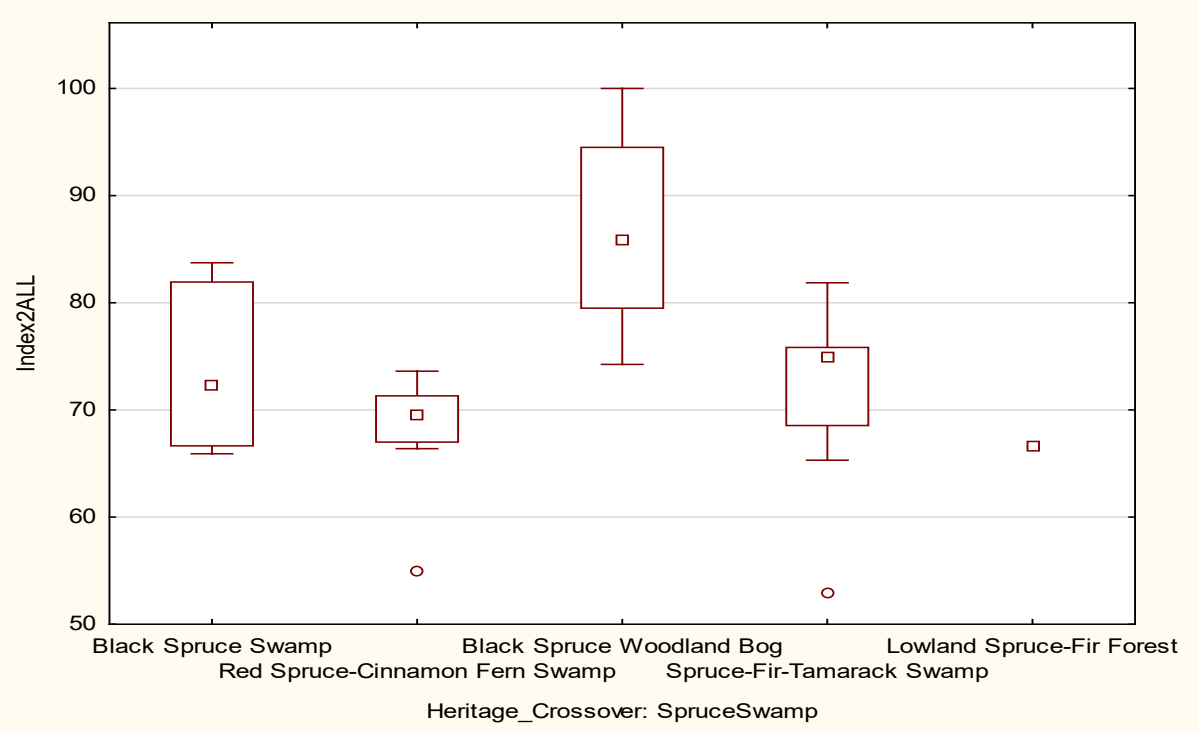

Include condition: hERTcROS_5='Floodplain'
900
700
500
300
100
-100
P Digested ug P/l
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

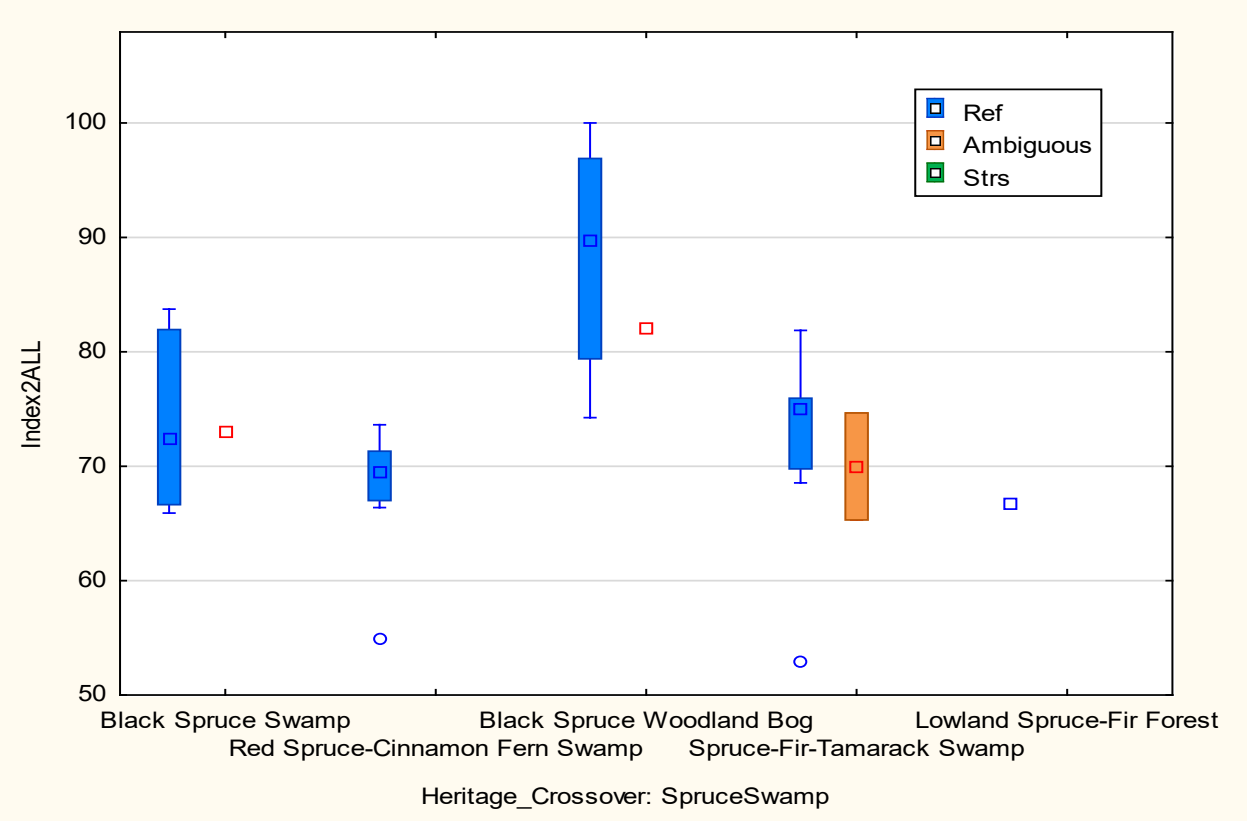

Include condition: hERTcROS_5='Floodplain'
500
300
100
-100
P filtered/dig ug P/l
Lakeside Floodplain Forest
Silver Maple-Sensitive Fern Riverine Floodplain Forest
Silver Maple-Ostrich Fern Riverine Floodplain Forest
Sugar Maple Floodplain Forest
Wet Clayplain Forest
Heritage_Crossover

Appendix D.

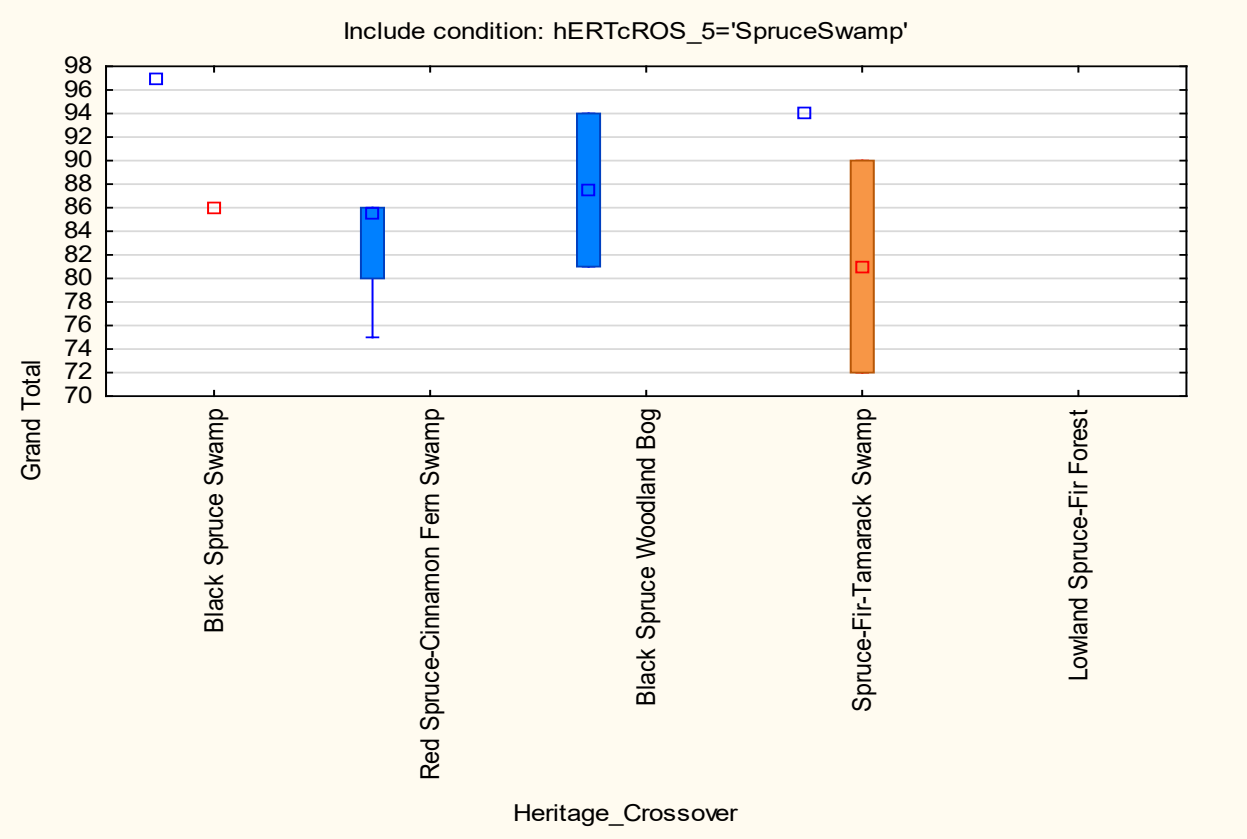
Appendix D

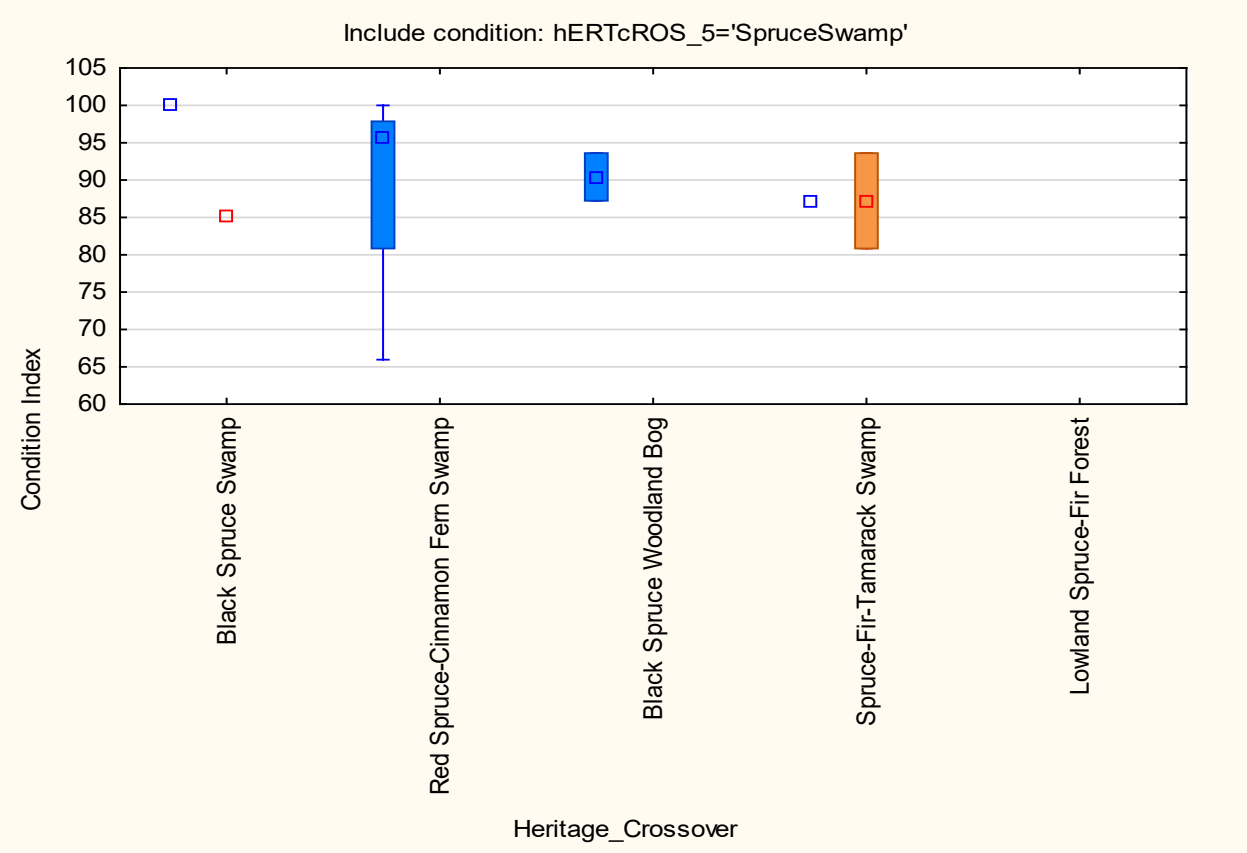
Section D.4 Characteristics among SpruceSwamp wetland types



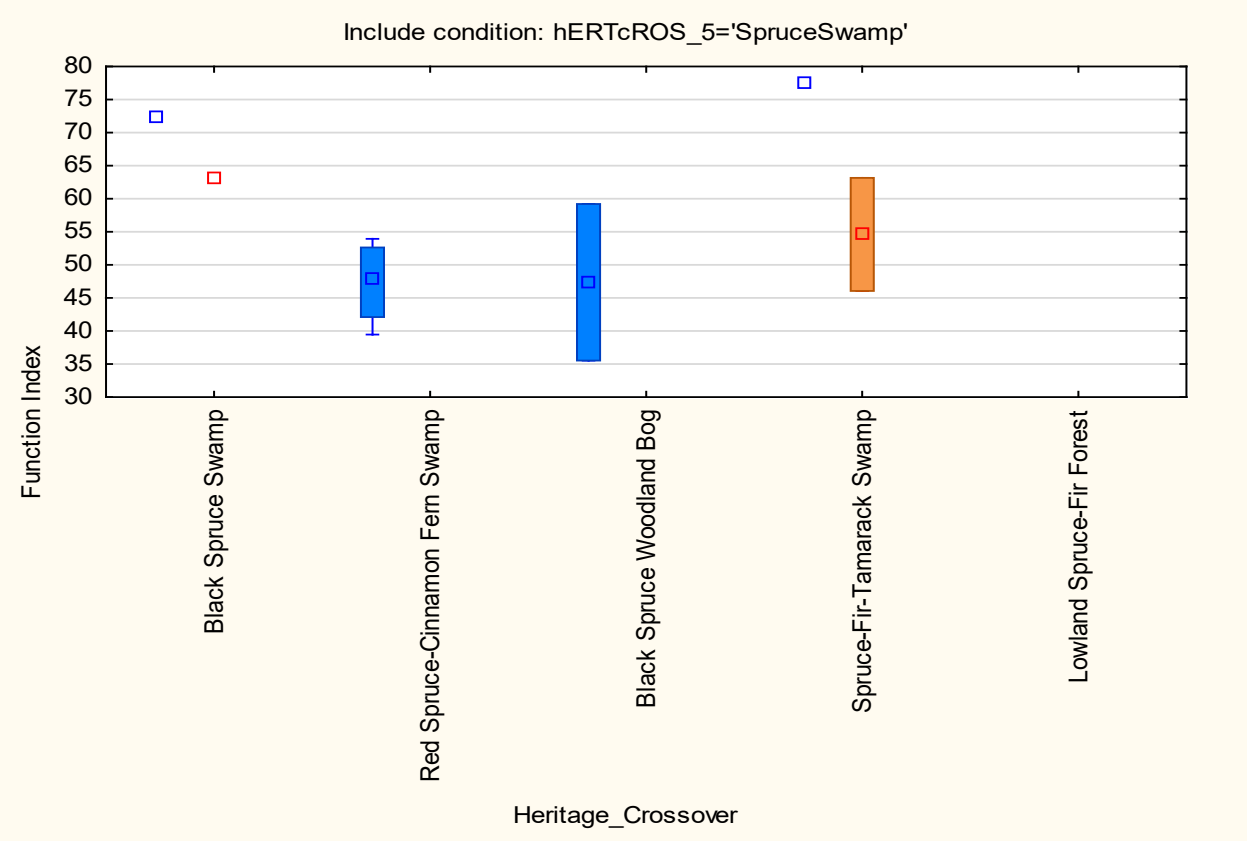


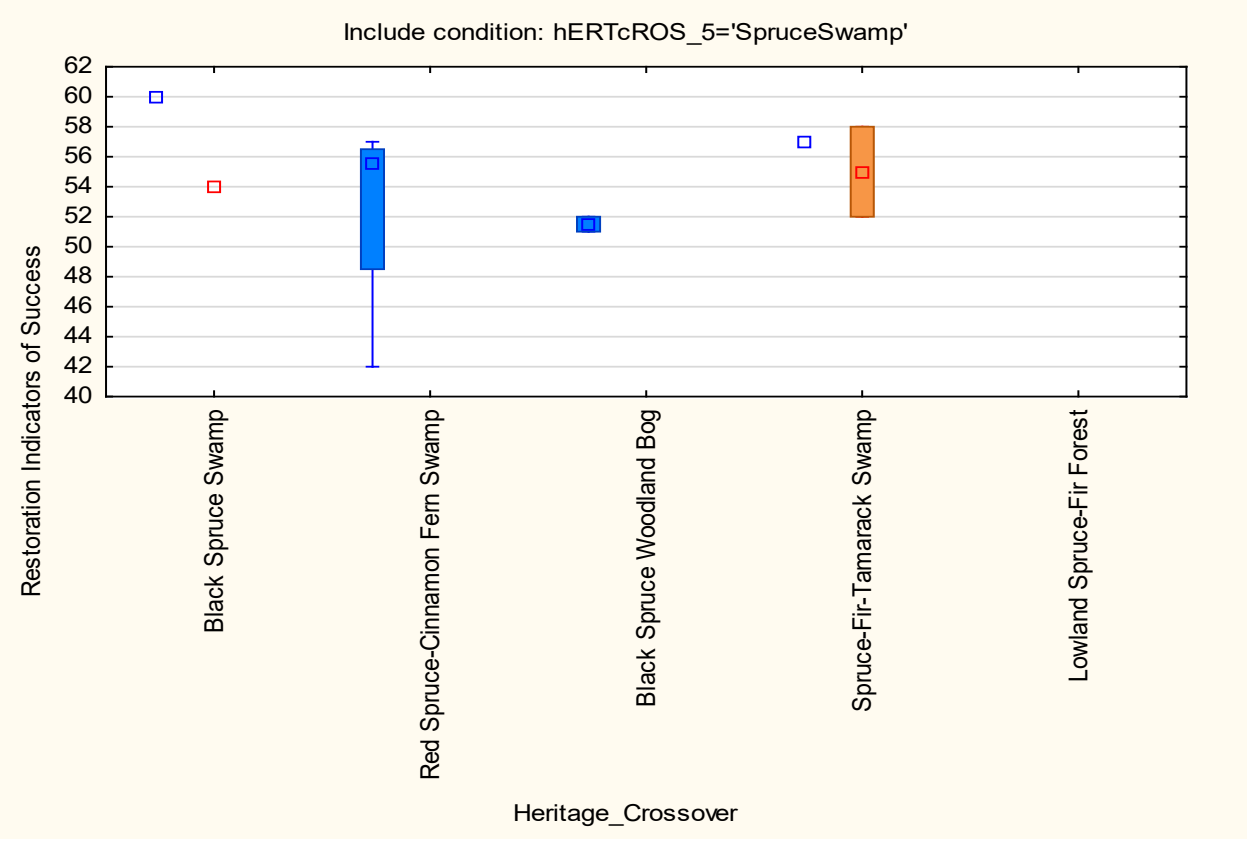
Appendix D.


Include condition: hERTcROS_5='SpruceSwamp'
Grand Total
98
96
94
92
90
88
86
84
82
80
78
76
74
72
70
Black Spruce Swamp
Red Spruce-Cinnamon Fern Swamp
Black Spruce Woodland Bog
Spruce-Fir-Tamarack Swamp
Lowland Spruce-Fir Forest
Heritage_Crossover

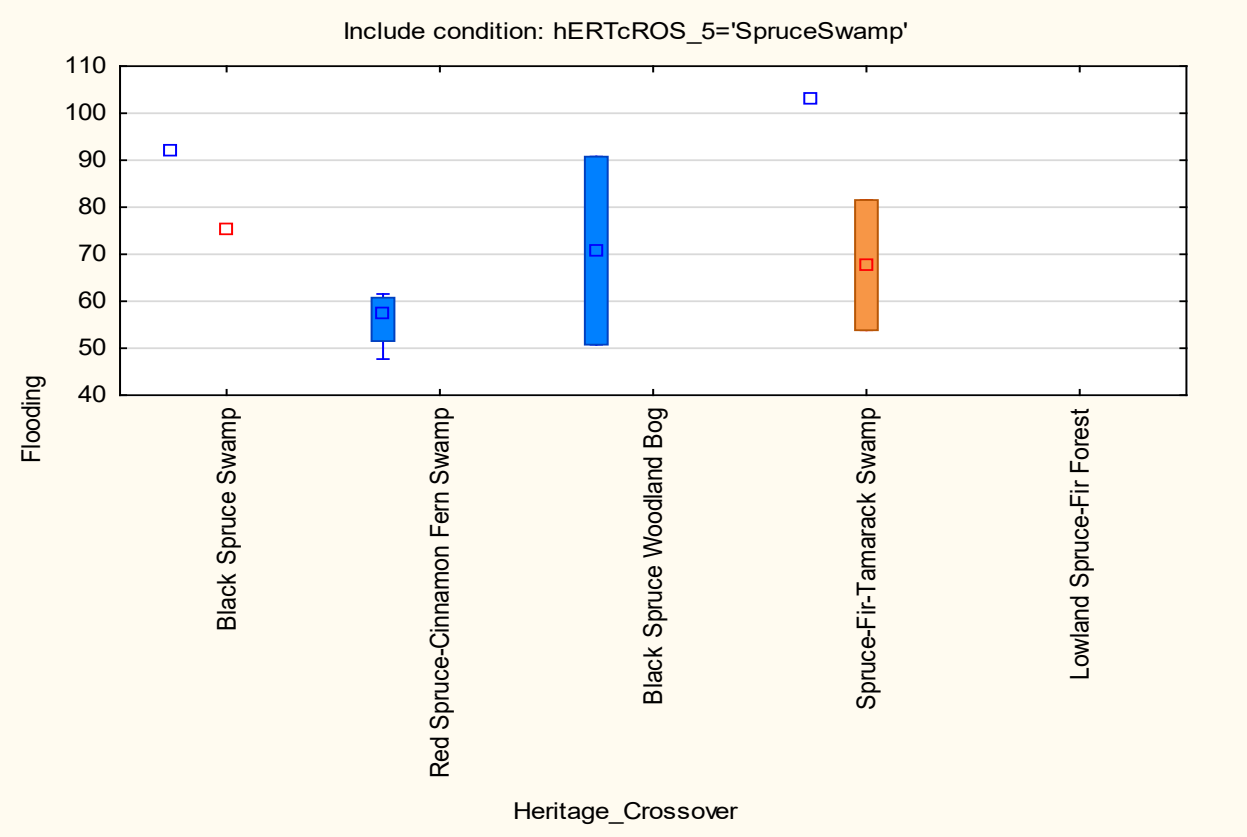

Include condition: hERTcROS_5='SpruceSwamp'
Condition Index
105
100
95
90
85
80
75
70
65
60
Black Spruce Swamp
Red Spruce-Cinnamon Fern Swamp
Black Spruce Woodland Bog
Spruce-Fir-Tamarack Swamp
Lowland Spruce-Fir Forest
Heritage_Crossover

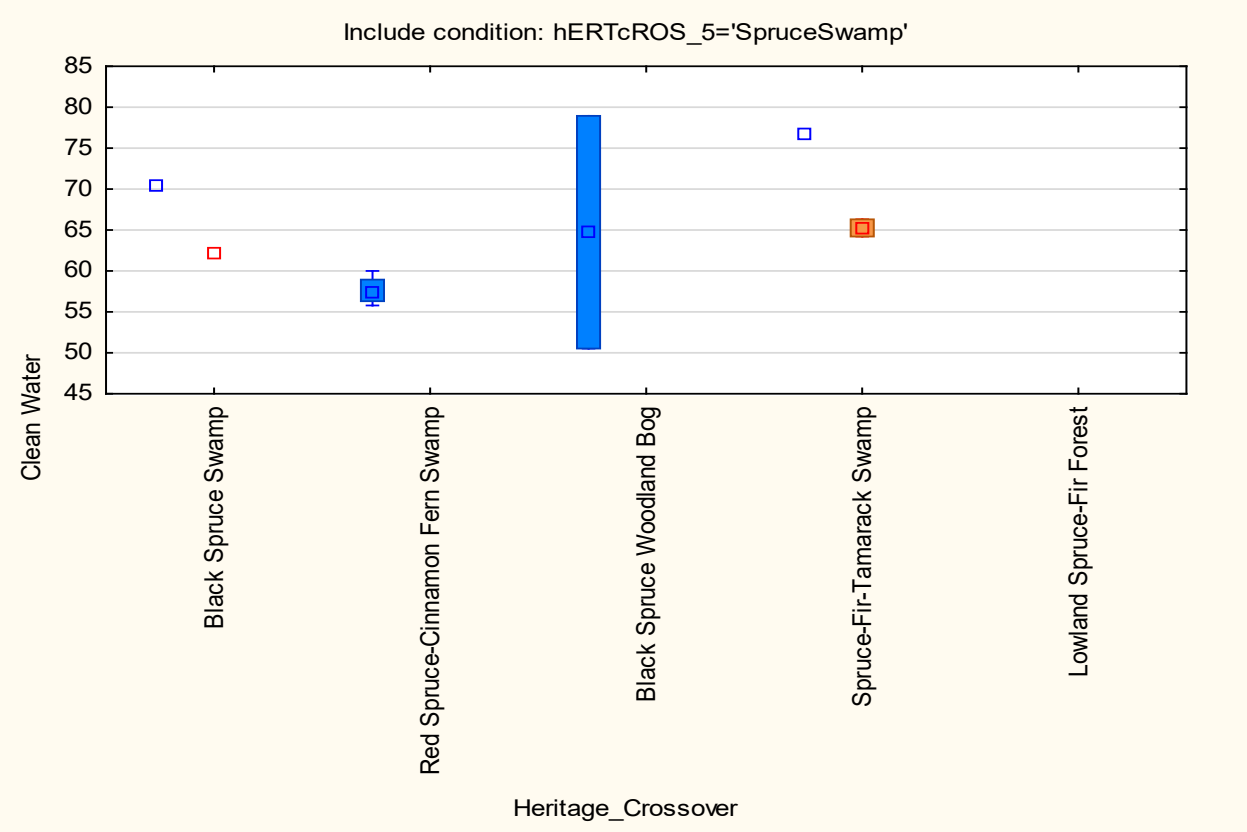
Appendix D.


Include condition: hERTcROS_5='SpruceSwamp'
Function Index
80
75
70
65
60
55
50
45
40
35
30
Black Spruce Swamp
Red Spruce-Cinnamon Fern Swamp
Black Spruce Woodland Bog
Spruce-Fir-Tamarack Swamp
Lowland Spruce-Fir Forest
Heritage_Crossover

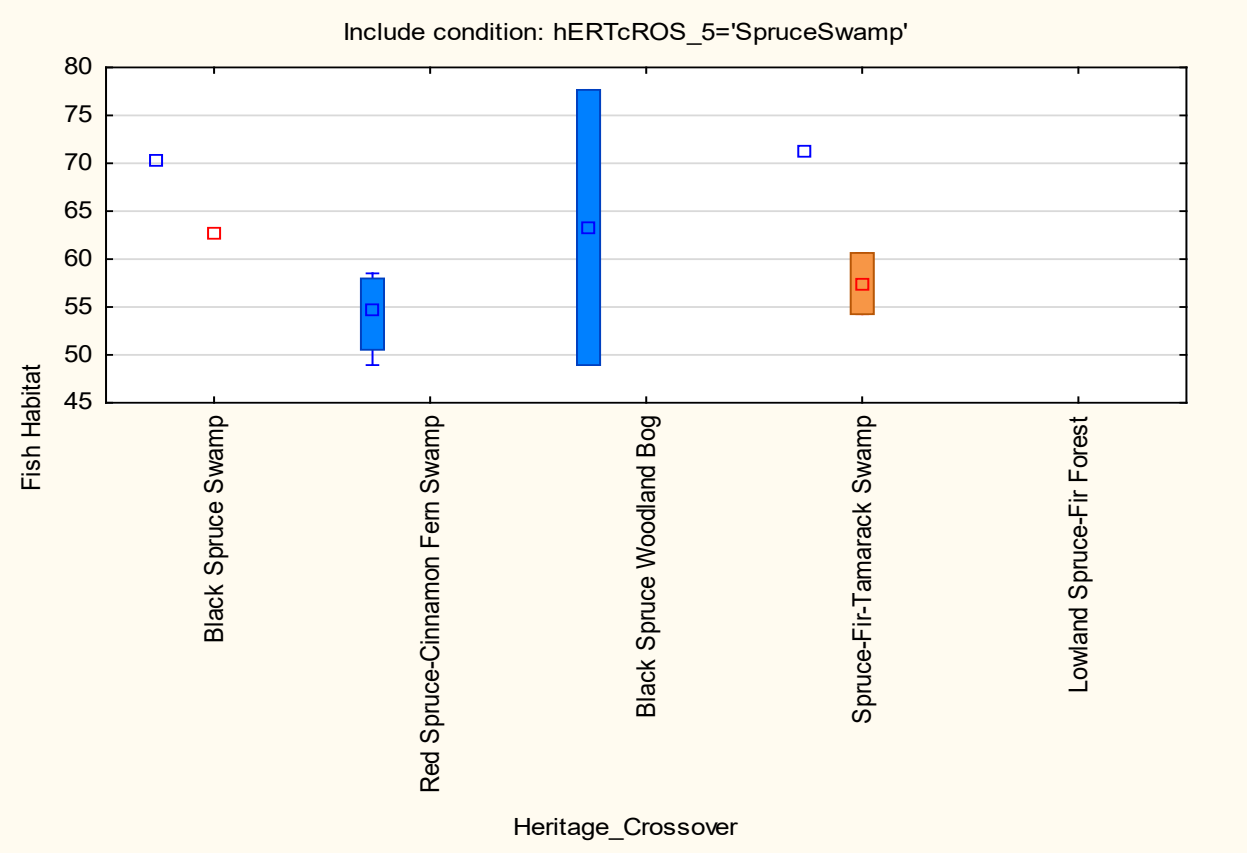

Include condition: hERTcROS_5='SpruceSwamp'
Restoration Indicators of Success
62
60
58
56
54
52
50
48
46
44
42
40
Black Spruce Swamp
Red Spruce-Cinnamon Fern Swamp
Black Spruce Woodland Bog
Spruce-Fir-Tamarack Swamp
Lowland Spruce-Fir Forest
Heritage_Crossover

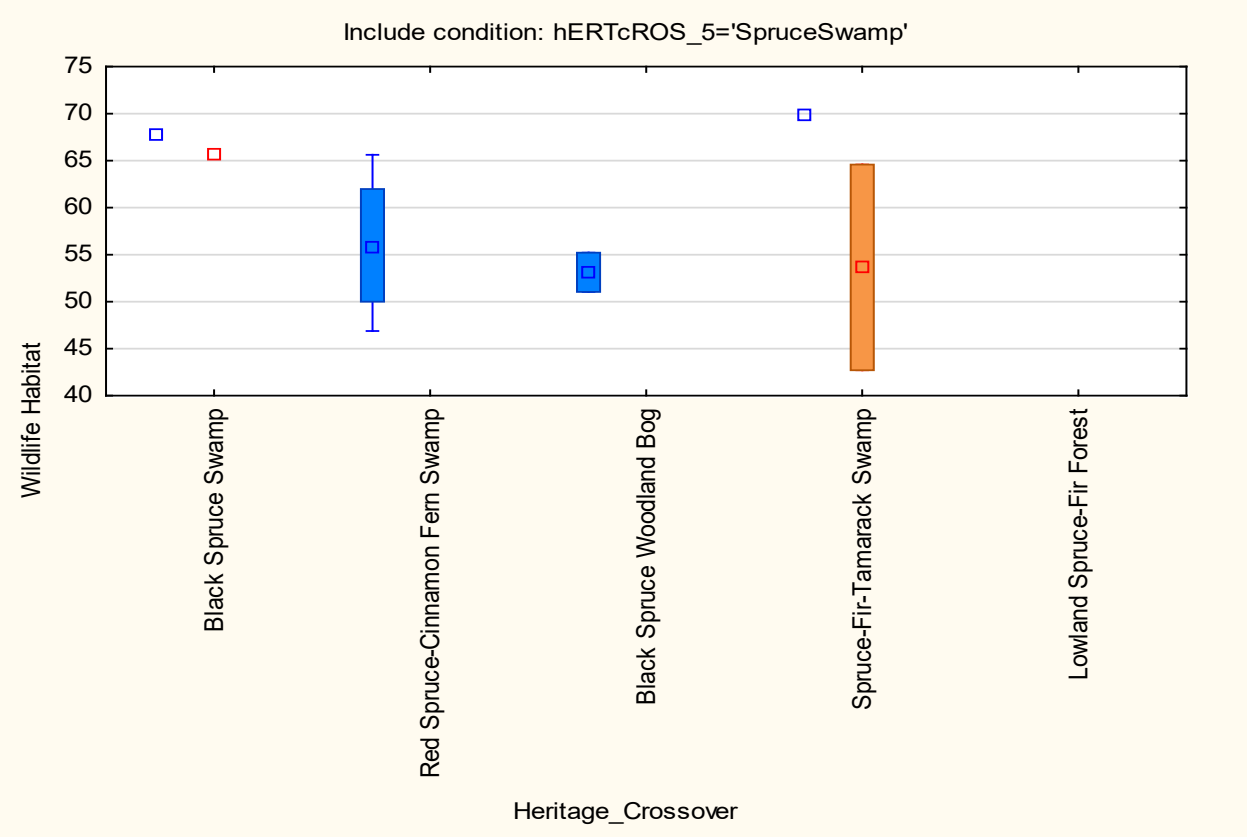
Appendix D.


Include condition: hERTcROS_5='SpruceSwamp'
110
100
90
80
70
60
50
40
Flooding
Black Spruce Swamp
Red Spruce-Cinnamon Fern Swamp
Black Spruce Woodland Bog
Spruce-Fir-Tamarack Swamp
Lowland Spruce-Fir Forest
Heritage_Crossover

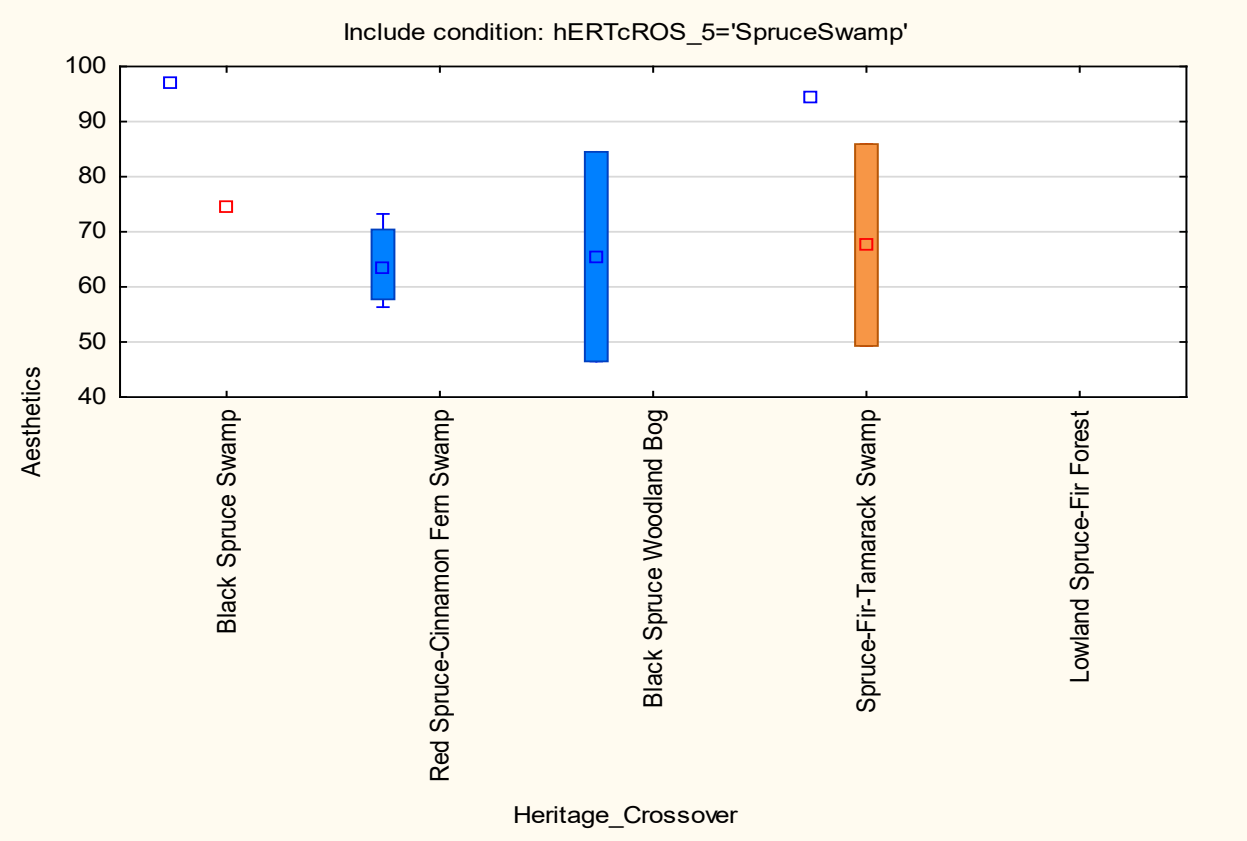

Include condition: hERTcROS_5='SpruceSwamp'
85
80
75
70
65
60
55
50
45
Clean Water
Black Spruce Swamp
Red Spruce-Cinnamon Fern Swamp
Black Spruce Woodland Bog
Spruce-Fir-Tamarack Swamp
Lowland Spruce-Fir Forest
Heritage_Crossover

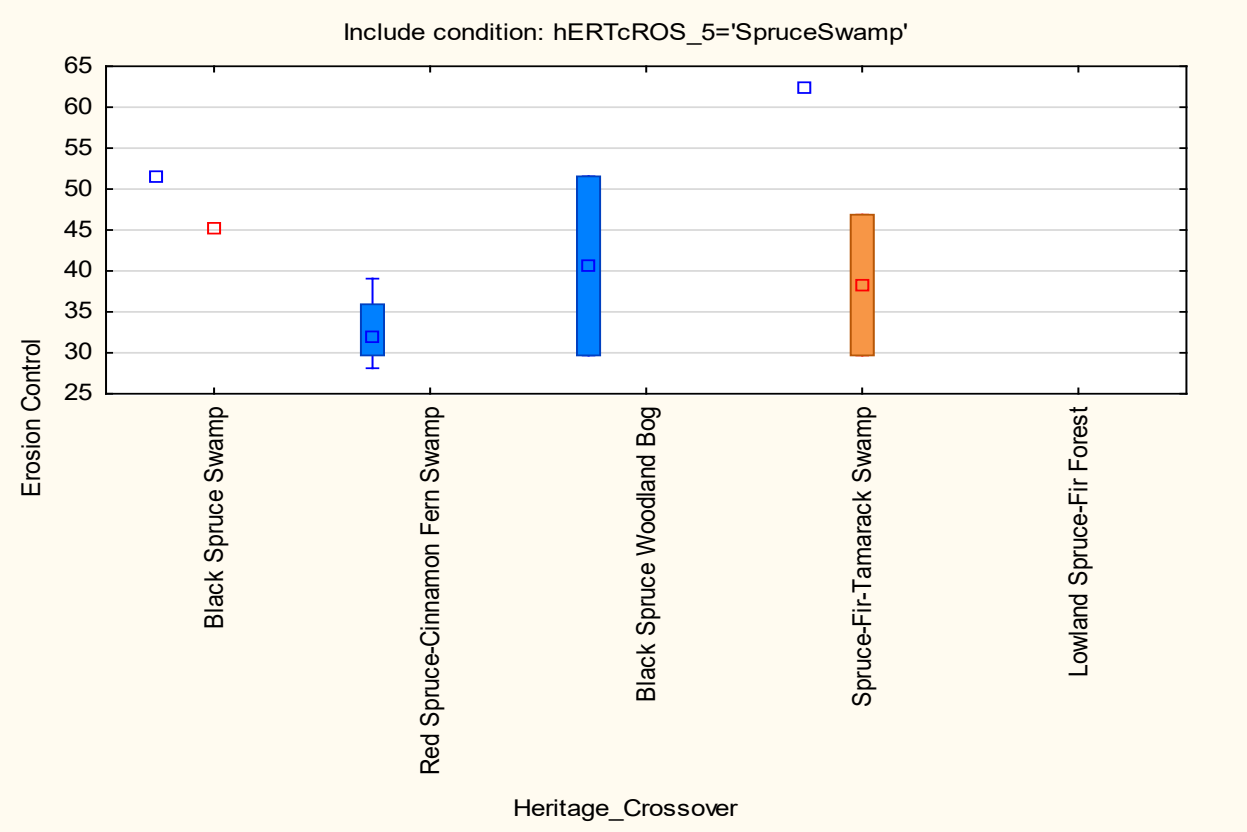
Appendix D.


Include condition: hERTcROS_5='SpruceSwamp'
Fish Habitat
80
75
70
65
60
55
50
45
Black Spruce Swamp
Red Spruce-Cinnamon Fern Swamp
Black Spruce Woodland Bog
Spruce-Fir-Tamarack Swamp
Lowland Spruce-Fir Forest
Heritage_Crossover

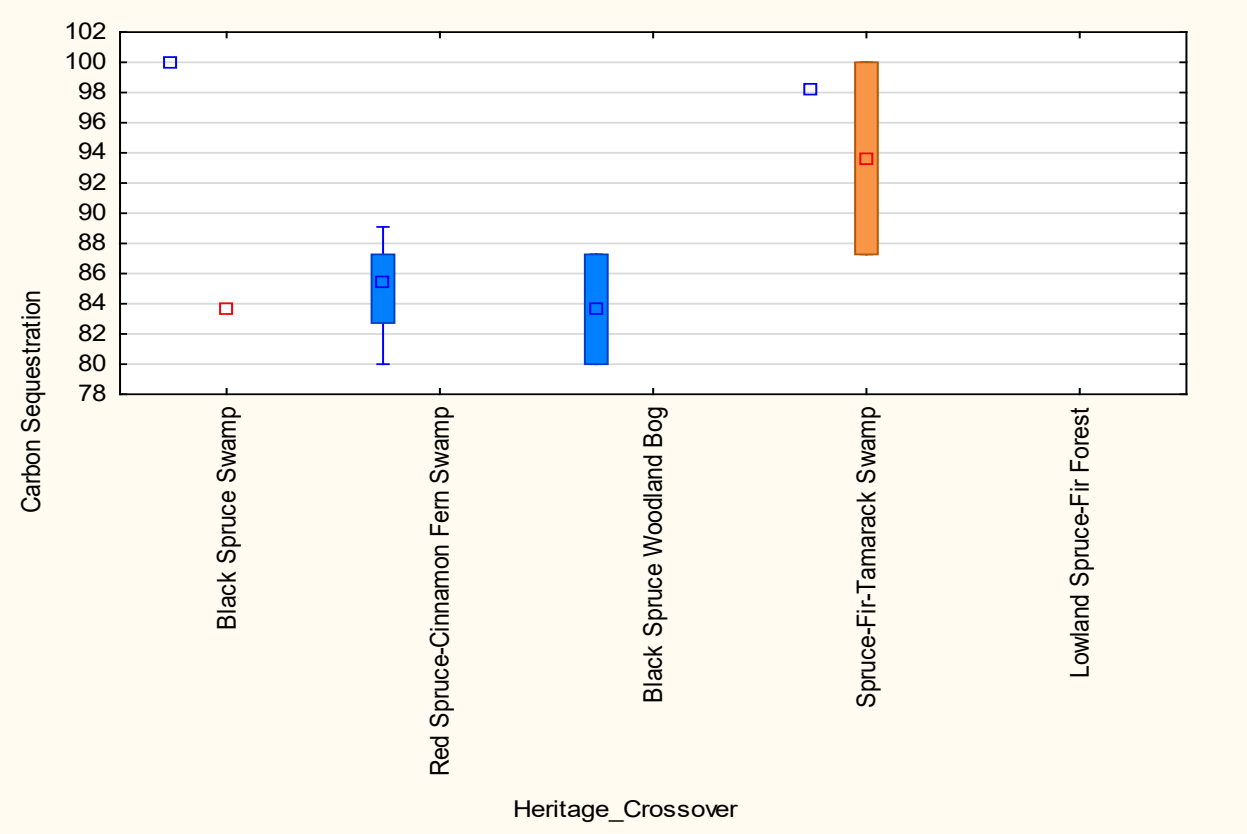

Include condition: hERTcROS_5='SpruceSwamp'
Wildlife Habitat
75
70
65
60
55
50
45
40
Black Spruce Swamp
Red Spruce-Cinnamon Fern Swamp
Black Spruce Woodland Bog
Spruce-Fir-Tamarack Swamp
Lowland Spruce-Fir Forest
Heritage_Crossover

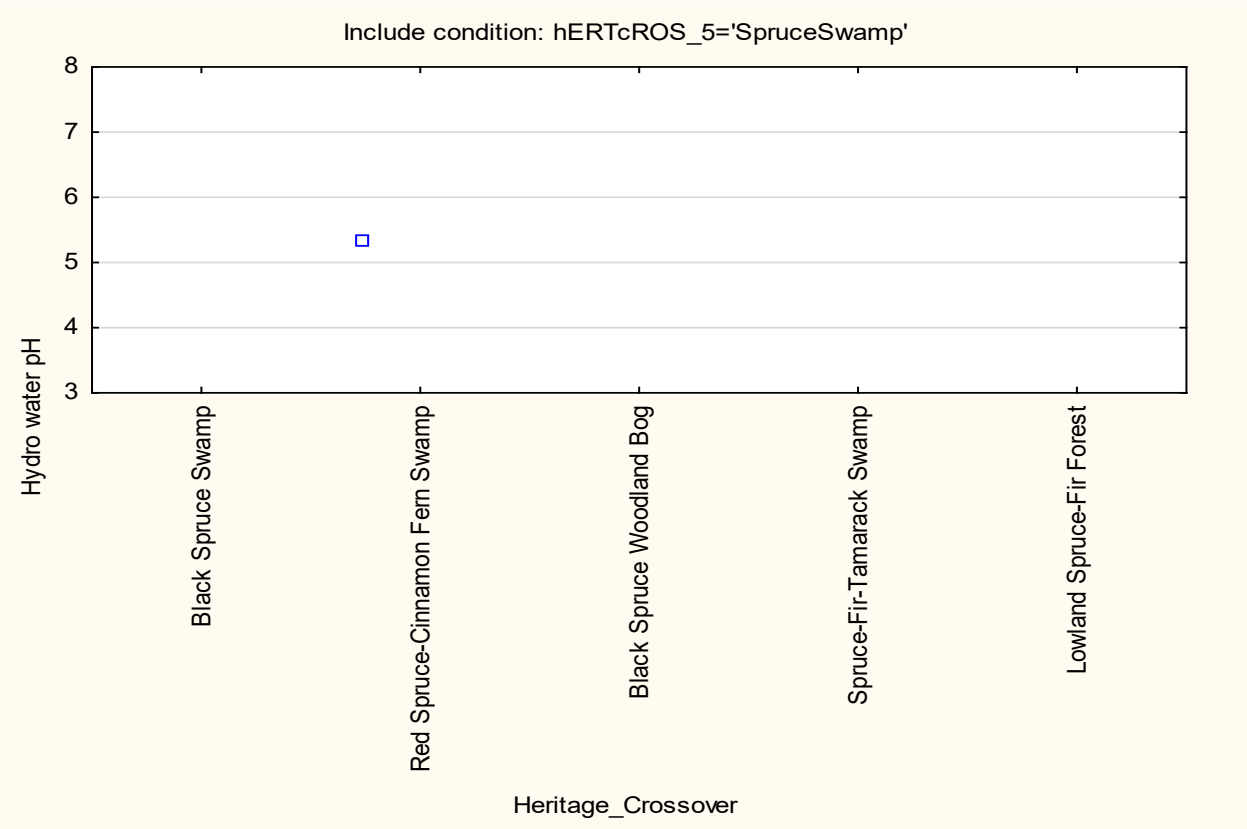
Appendix D.


Include condition: hERTcROS_5='SpruceSwamp'
Aesthetics
100
90
80
70
60
50
40
Black Spruce Swamp
Red Spruce-Cinnamon Fern Swamp
Black Spruce Woodland Bog
Spruce-Fir-Tamarack Swamp
Lowland Spruce-Fir Forest
Heritage_Crossover


Include condition: hERTcROS_5='SpruceSwamp'
Erosion Control
65
60
55
50
45
40
35
30
25
Black Spruce Swamp
Red Spruce-Cinnamon Fern Swamp
Black Spruce Woodland Bog
Spruce-Fir-Tamarack Swamp
Lowland Spruce-Fir Forest
Heritage_Crossover

Appendix D.


Carbon Sequestration
102
100
98
96
94
92
90
88
86
84
82
80
78
Black Spruce Swamp
Red Spruce-Cinnamon Fern Swamp
Black Spruce Woodland Bog
Spruce-Fir-Tamarack Swamp
Lowland Spruce-Fir Forest
Heritage_Crossover


Include condition: hERTcROS_5='SpruceSwamp'
Hydro water pH
8
7
6
5
4
3
Black Spruce Swamp
Red Spruce-Cinnamon Fern Swamp
Black Spruce Woodland Bog
Spruce-Fir-Tamarack Swamp
Lowland Spruce-Fir Forest
Heritage_Crossover

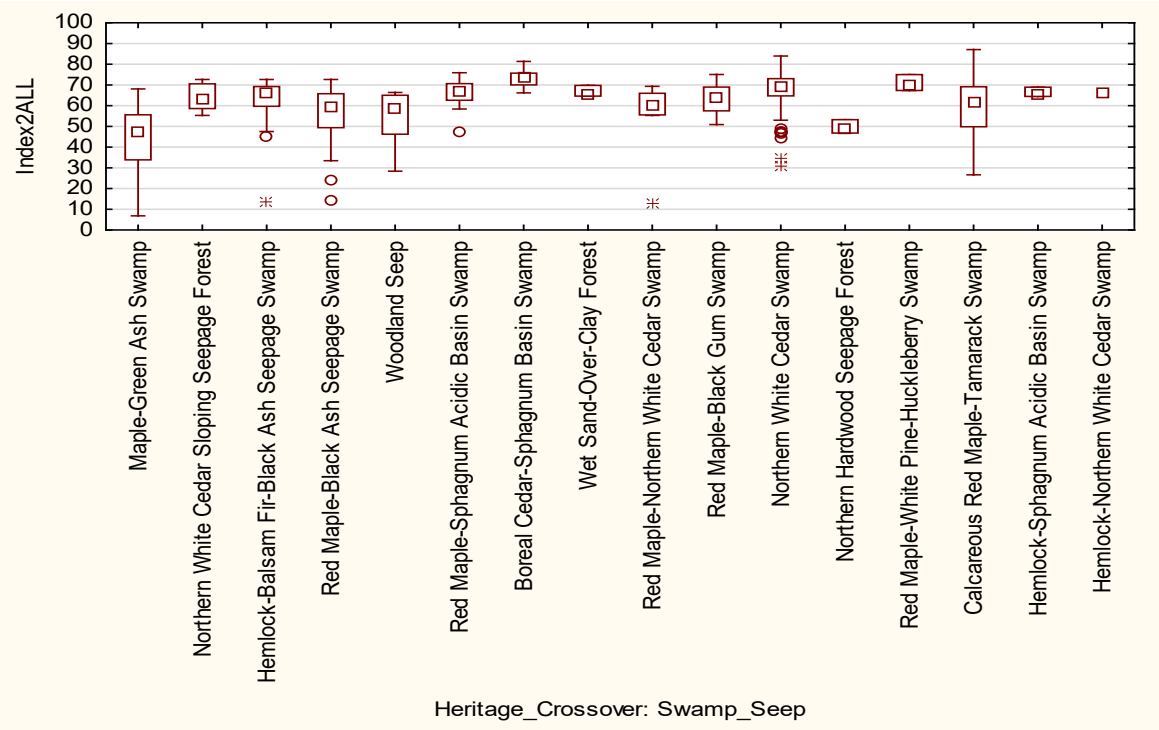
Appendix D.

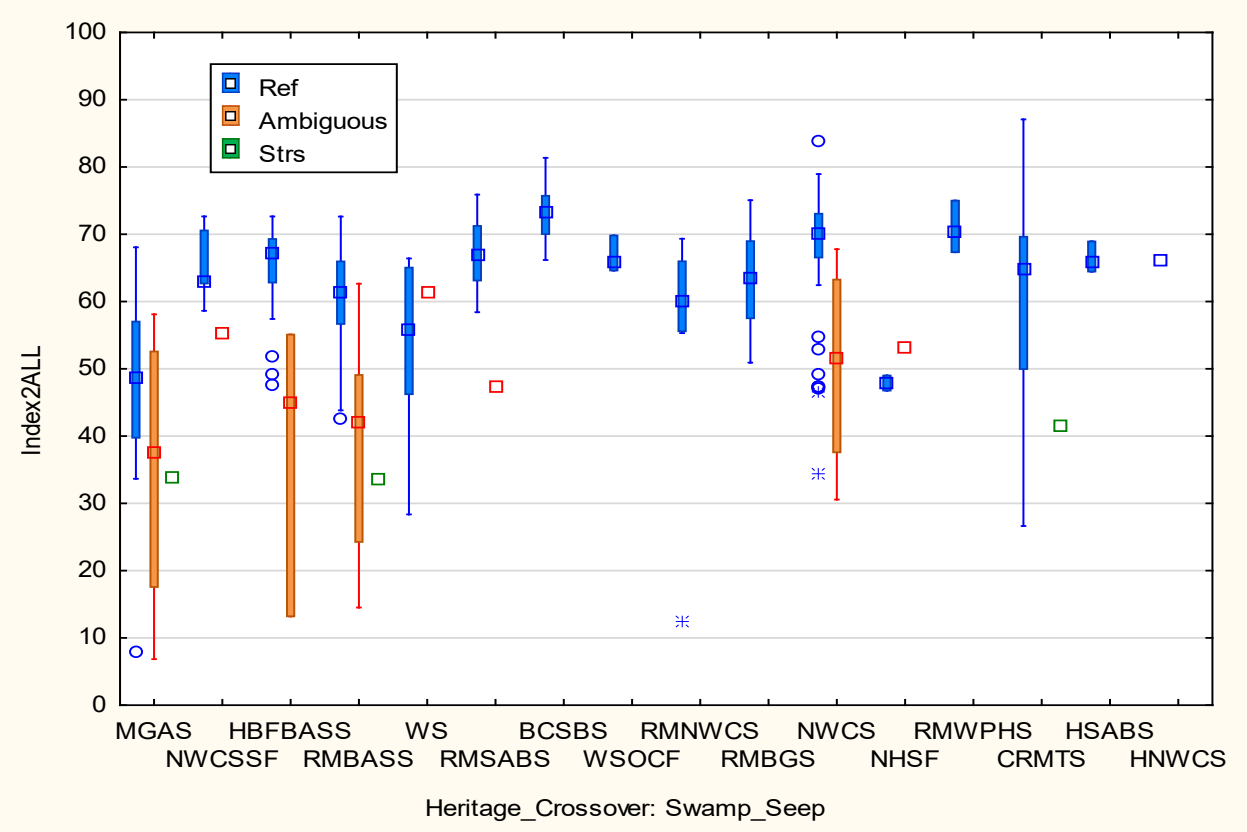
Water chemistry was not collected in most SpruceSwamp wetlands so distributions for the single wetland is not shown.

Appendix D.

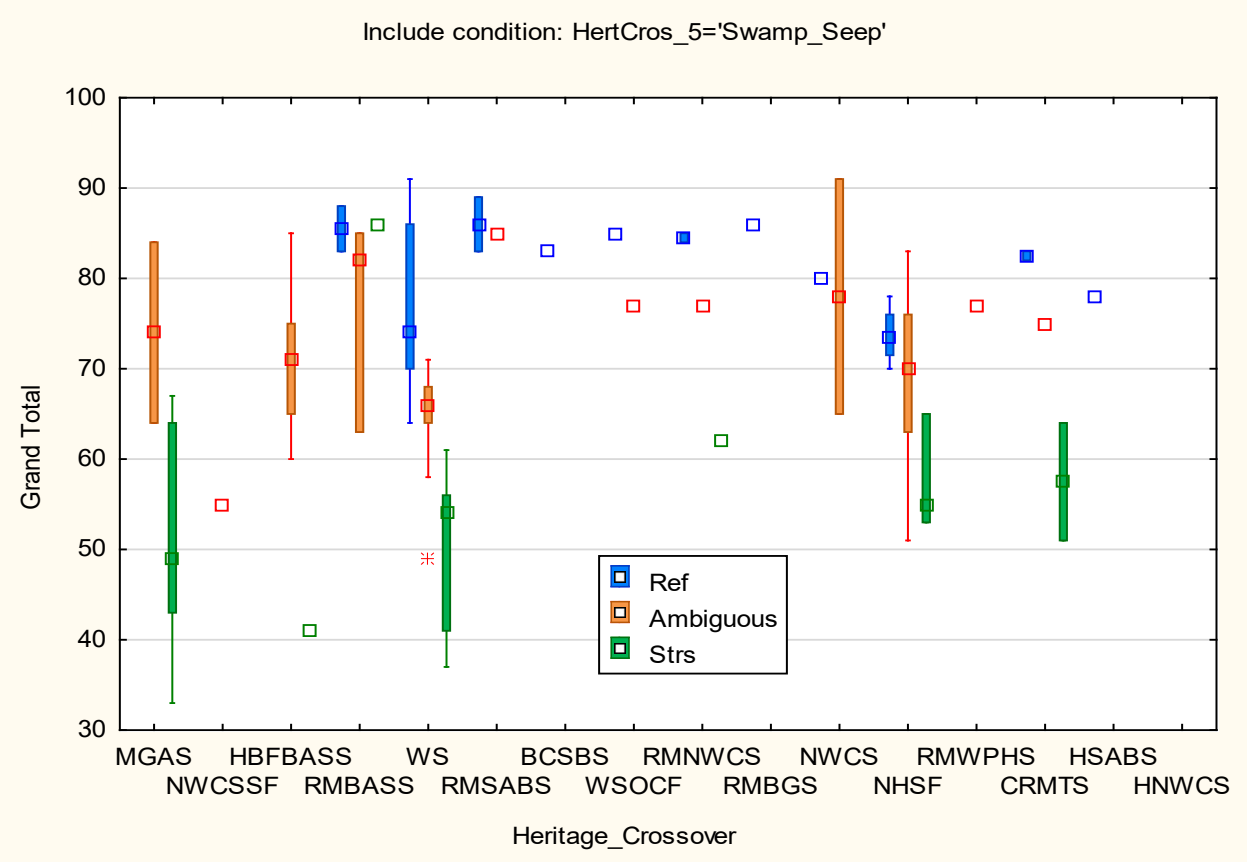
Appendix D

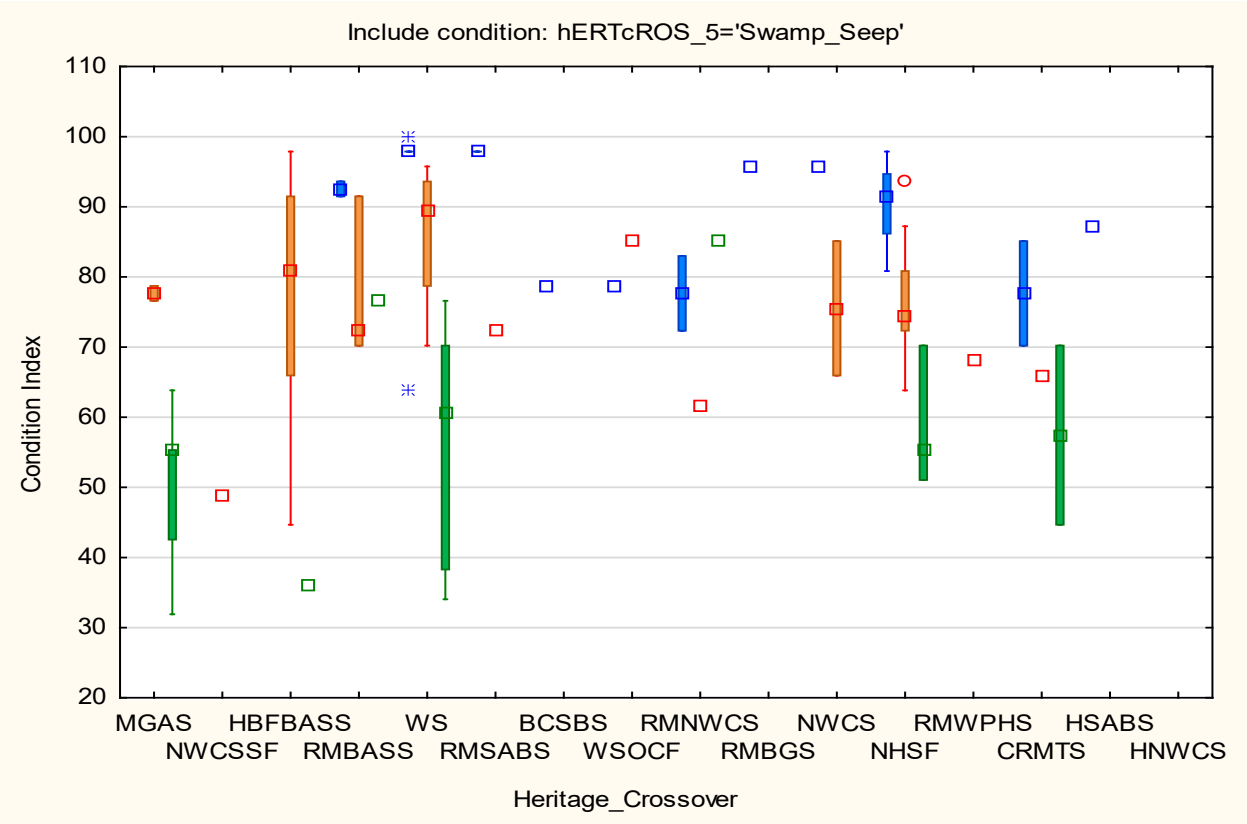
Section D.5 Characteristics among Swamp_Seep wetland types



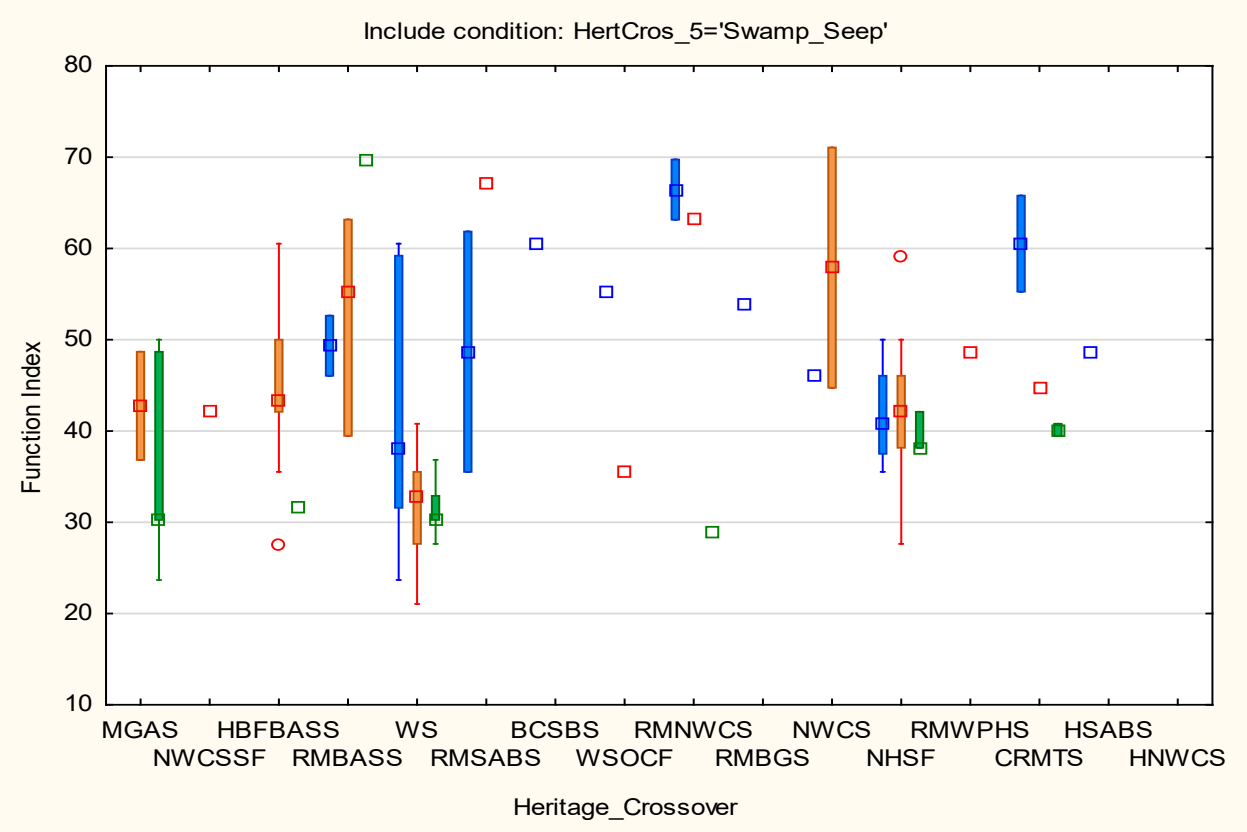


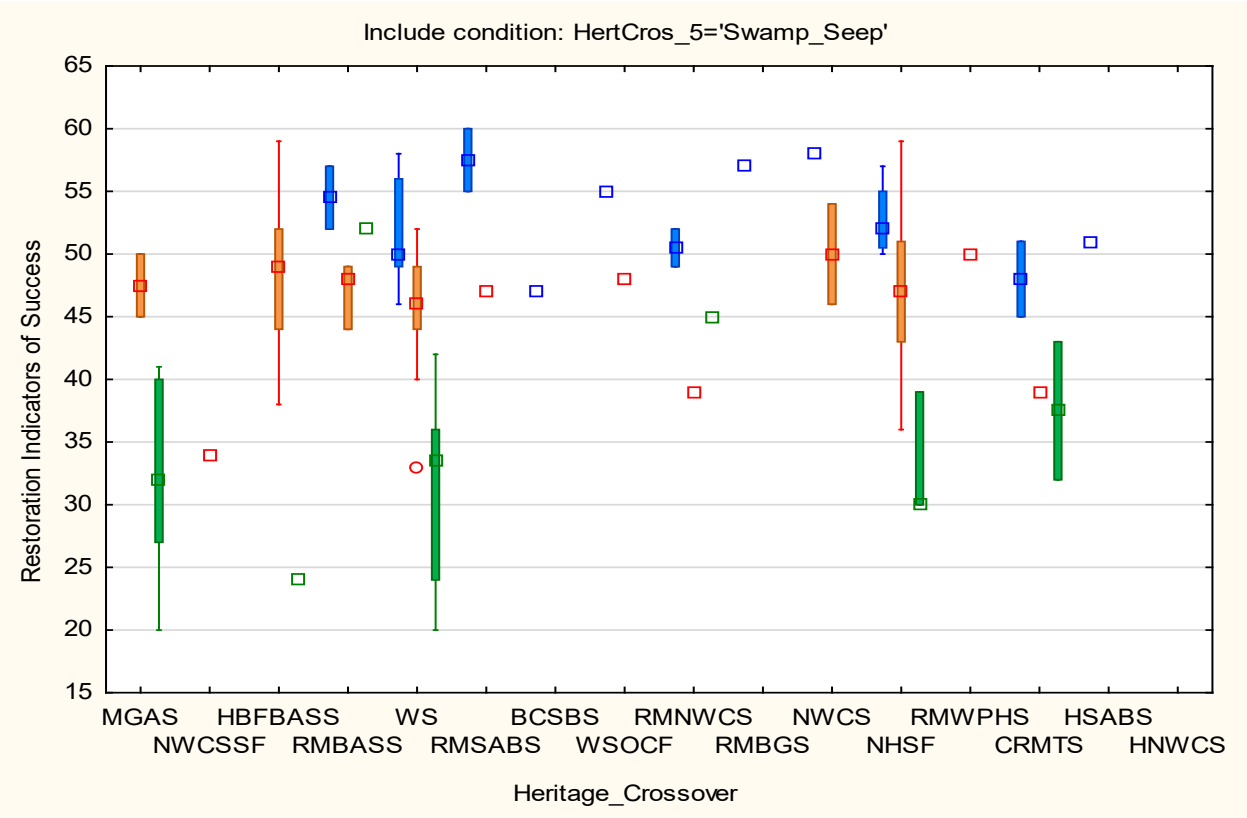
Appendix D.


Include condition: HertCros_5='Swamp_Seep'
Grand Total
100
90
80
70
60
50
40
30
Ref
Ambiguous
Strs
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

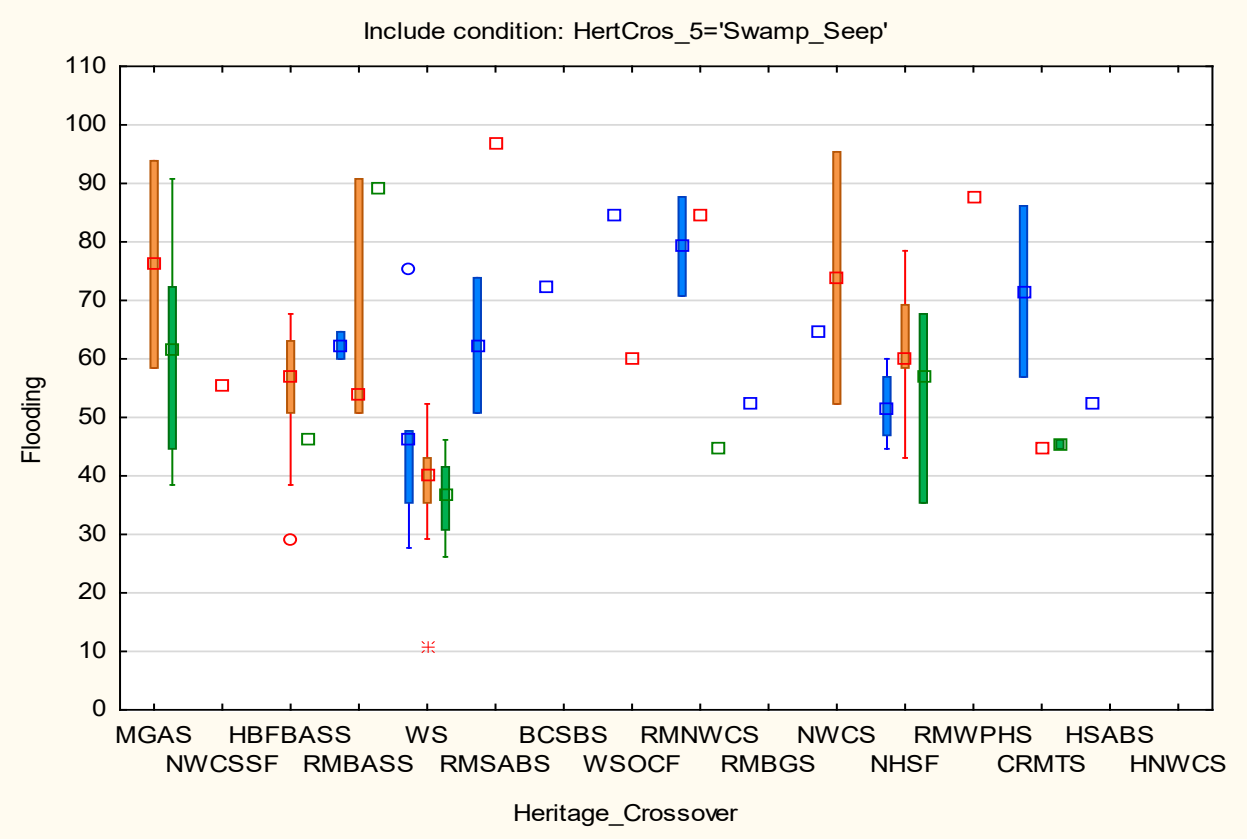

Include condition: hERTcROS_5='Swamp_Seep'
Condition Index
110
100
90
80
70
60
50
40
30
20
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

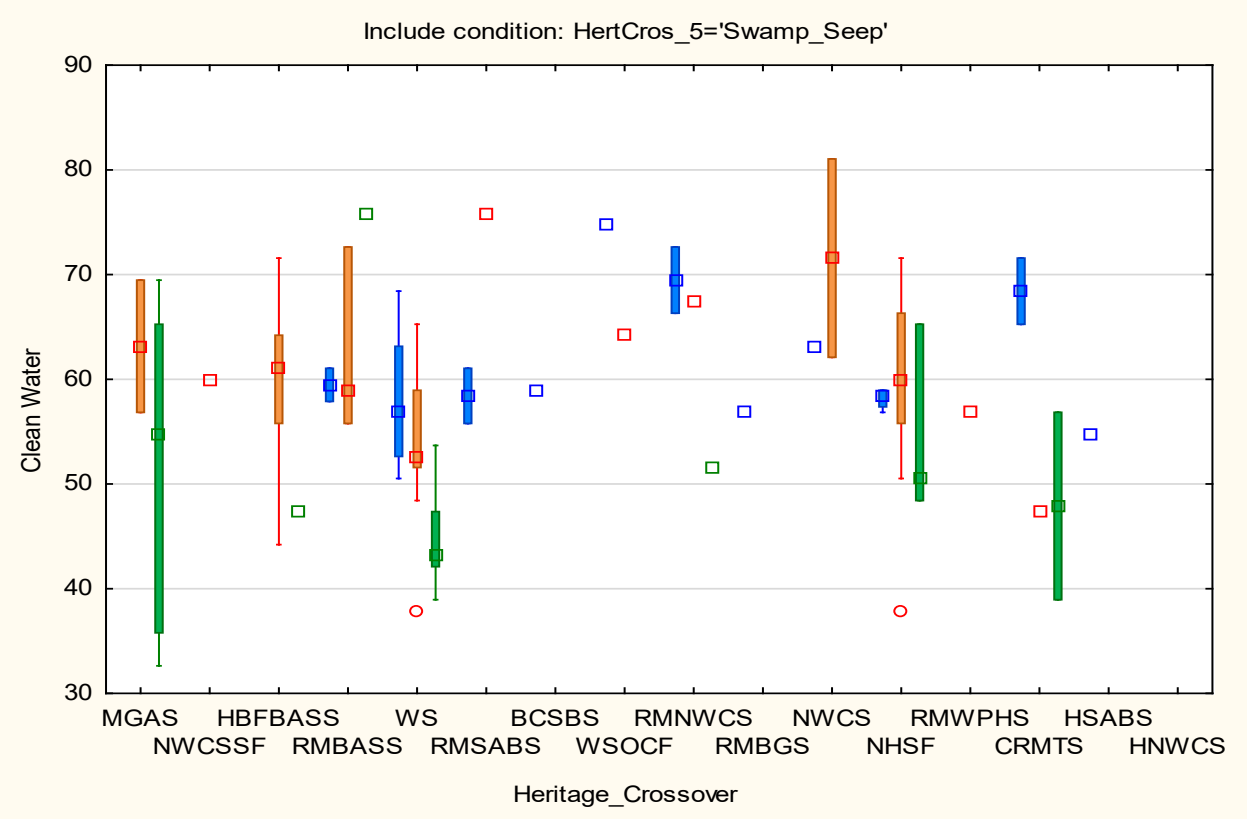
Appendix D.


Include condition: HertCros_5='Swamp_Seep'
Function Index
80
70
60
50
40
30
20
10
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

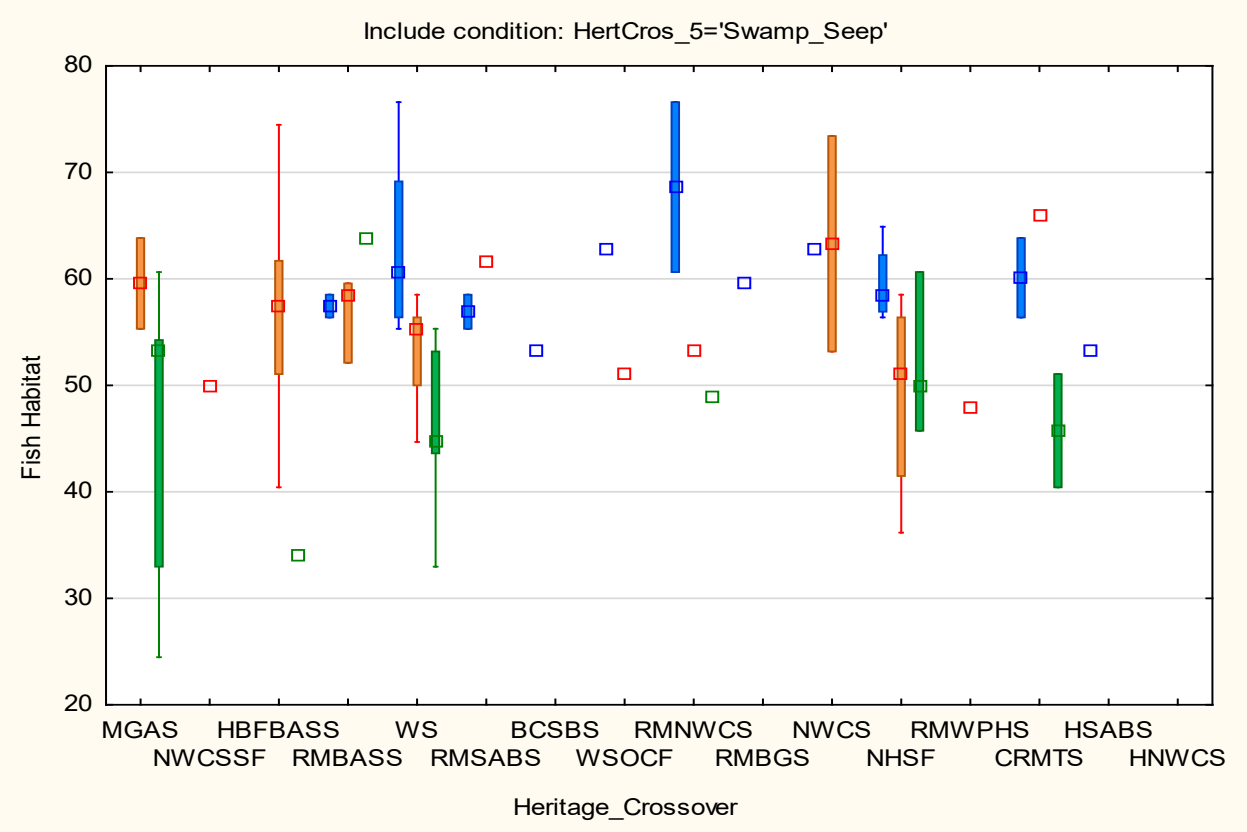

Include condition: HertCros_5='Swamp_Seep'
Restoration Indicators of Success
65
60
55
50
45
40
35
30
25
20
15
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

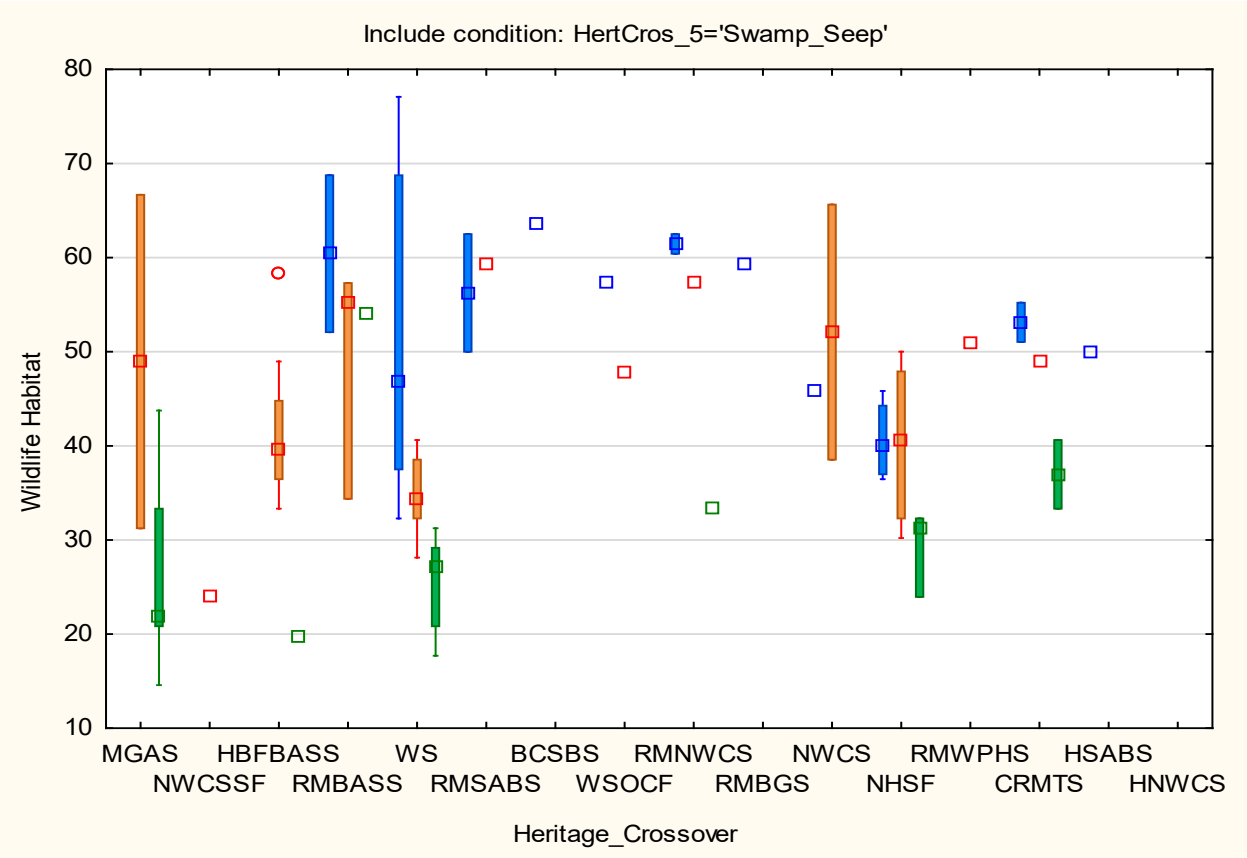
Appendix D.


Include condition: HertCros_5='Swamp_Seep'
Flooding
110
100
90
80
70
60
50
40
30
20
10
0
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

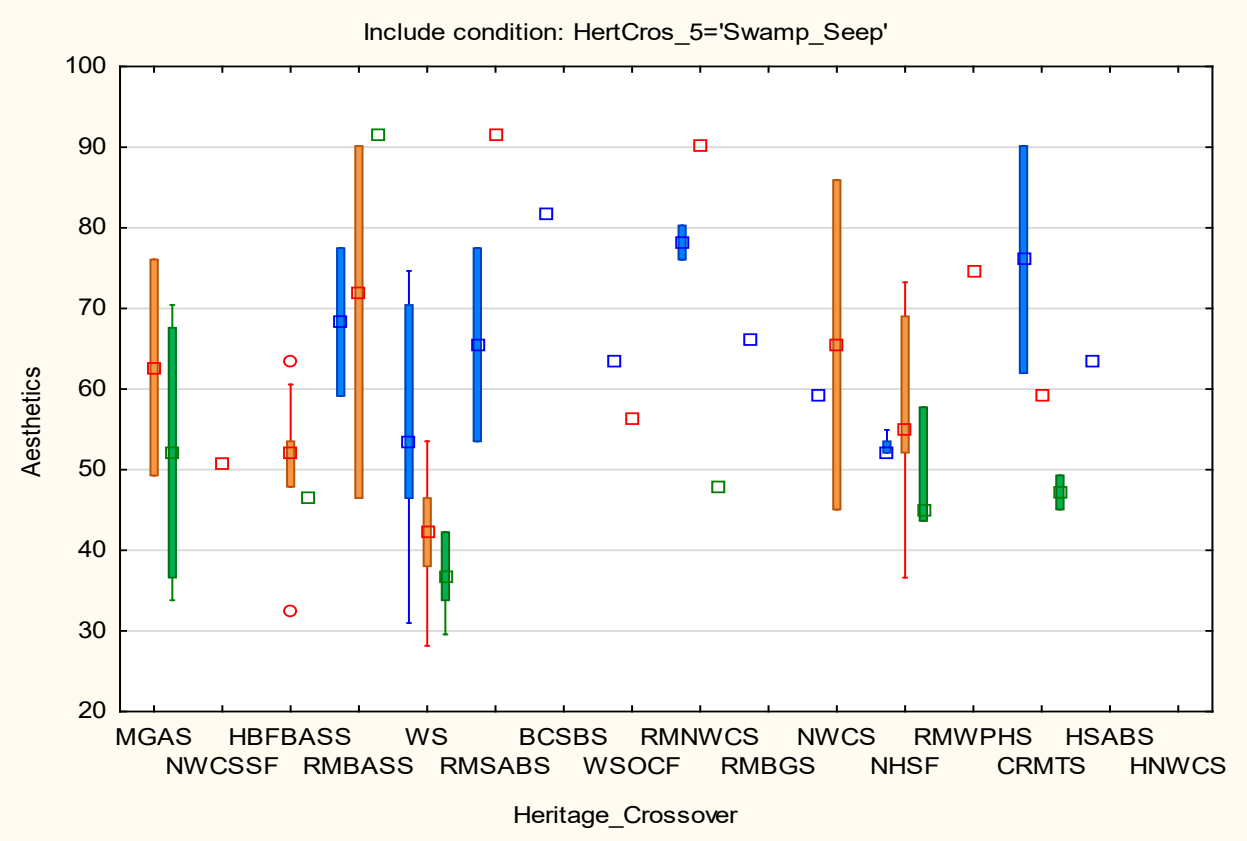

Include condition: HertCros_5='Swamp_Seep'
Clean Water
90
80
70
60
50
40
30
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

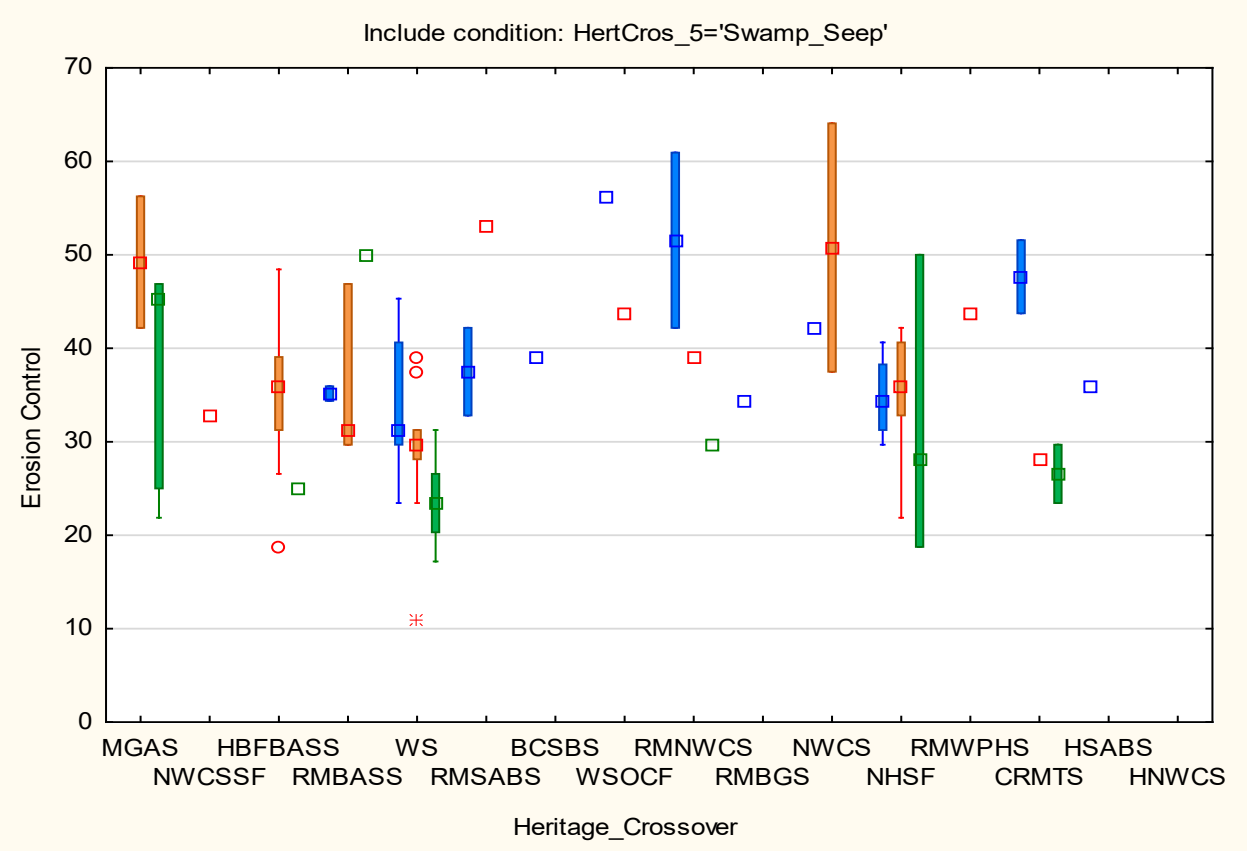
Appendix D.


Include condition: HertCros_5='Swamp_Seep'
Fish Habitat
80
70
60
50
40
30
20
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

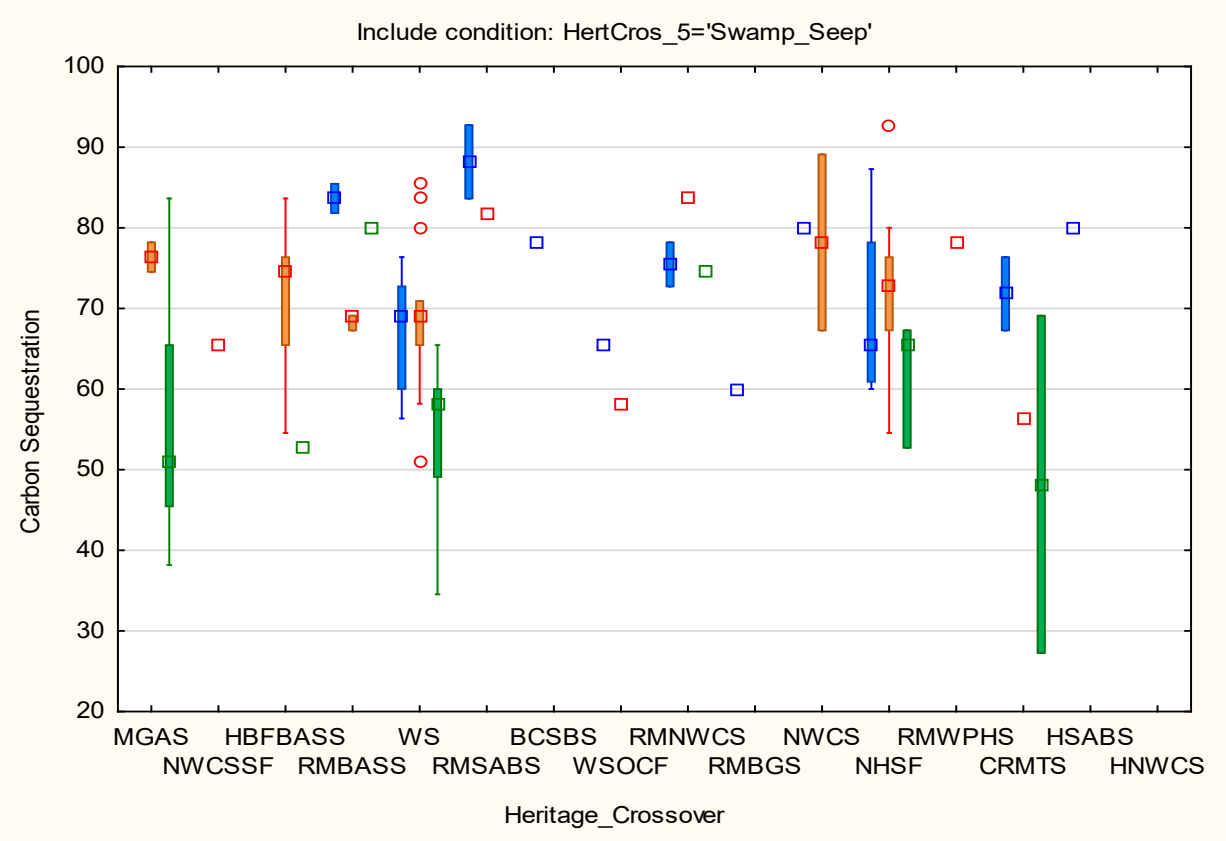

Include condition: HertCros_5='Swamp_Seep'
Wildlife Habitat
80
70
60
50
40
30
20
10
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

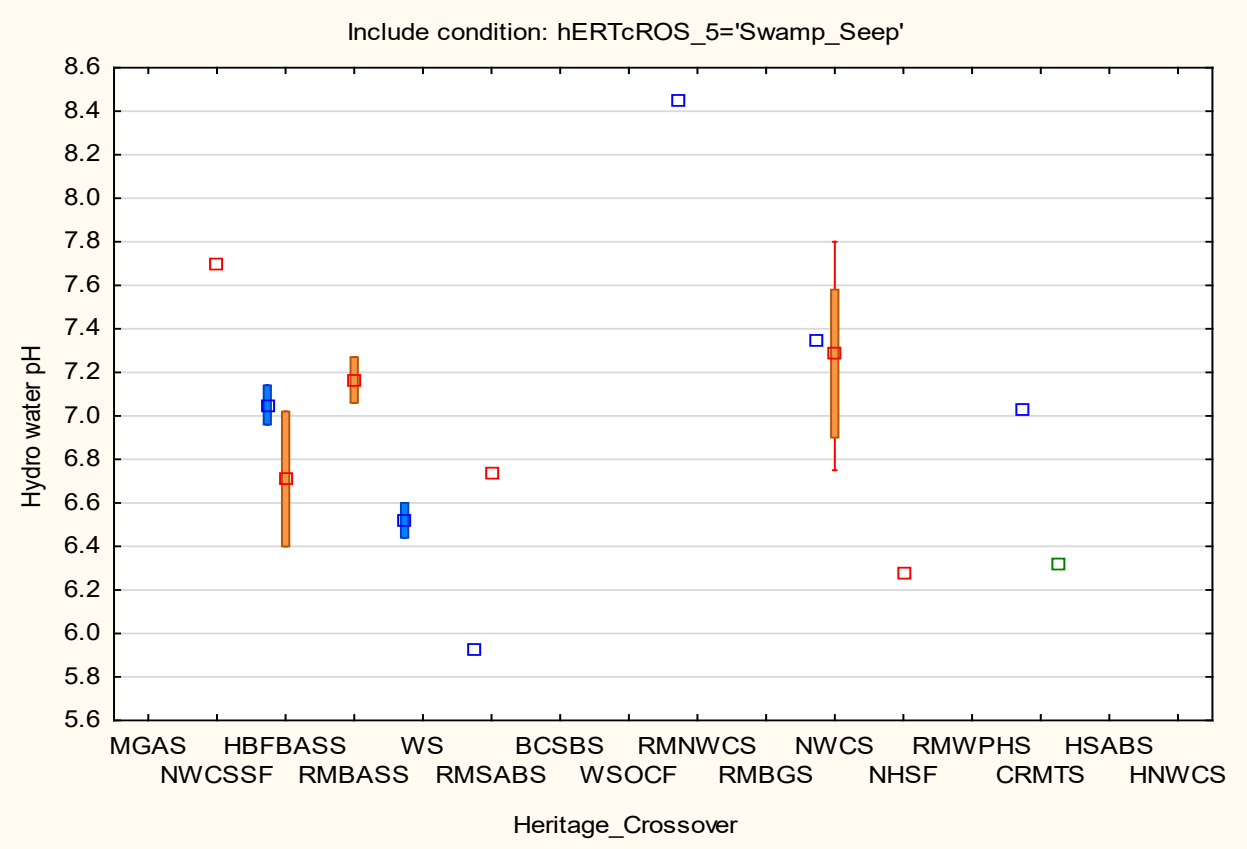
Appendix D.


Include condition: HertCros_5='Swamp_Seep'
Aesthetics
100
90
80
70
60
50
40
30
20
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

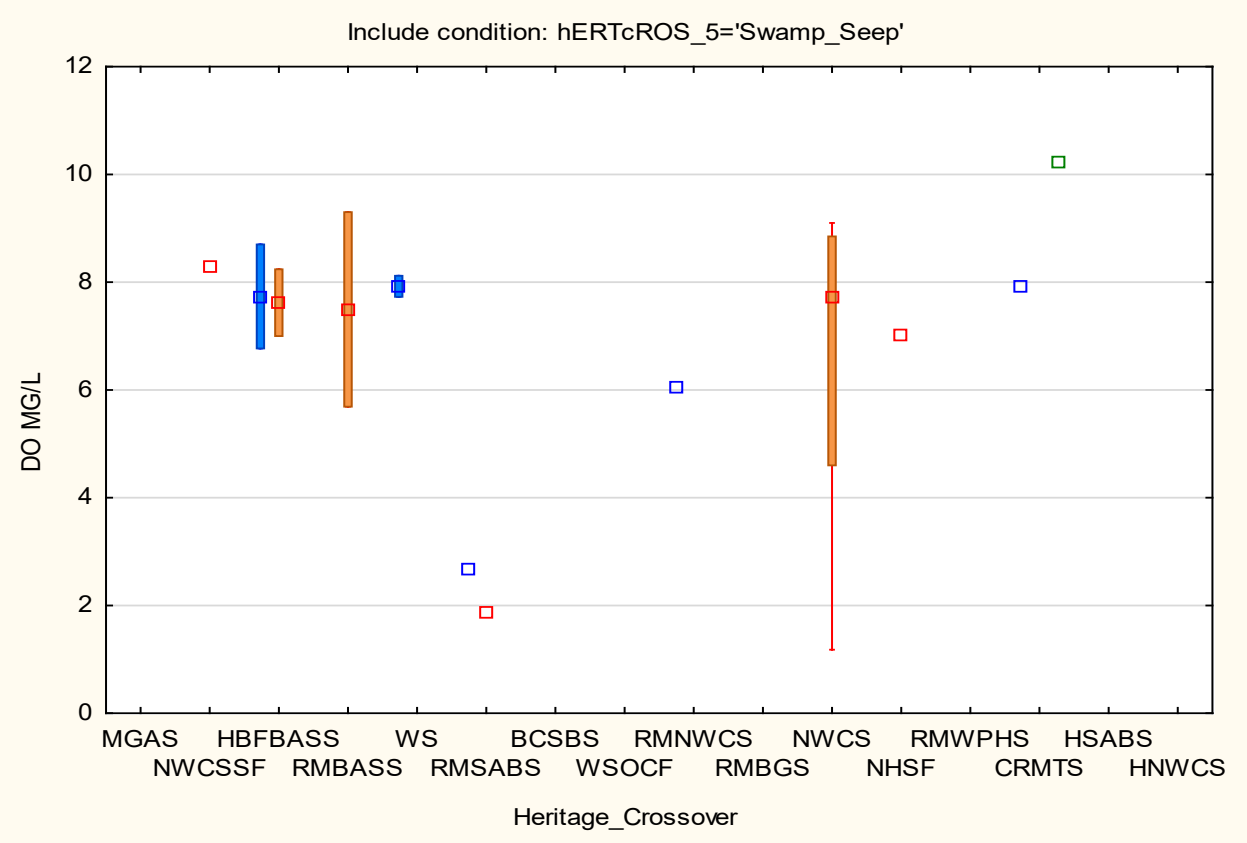

Include condition: HertCros_5='Swamp_Seep'
Erosion Control
70
60
50
40
30
20
10
0
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

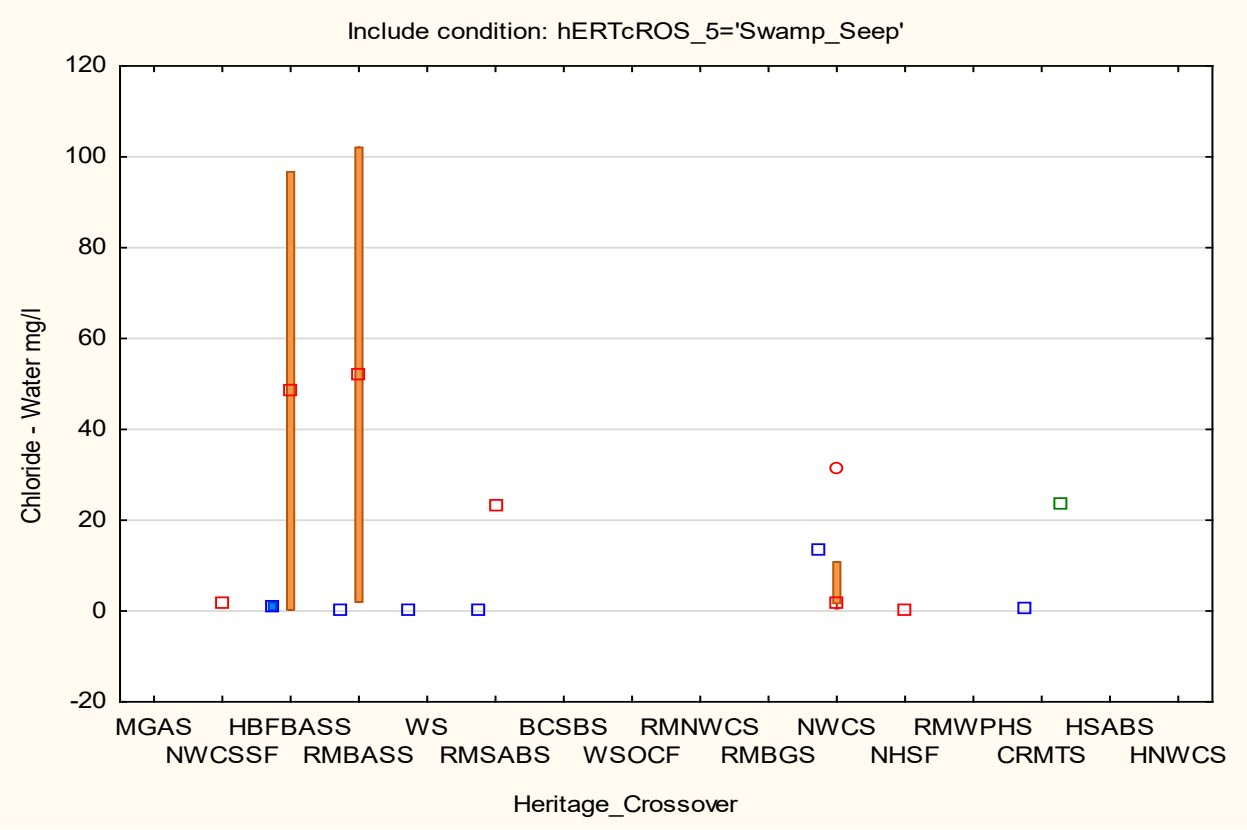
Appendix D.


Include condition: HertCros_5='Swamp_Seep'
Carbon Sequestration
100
90
80
70
60
50
40
30
20
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

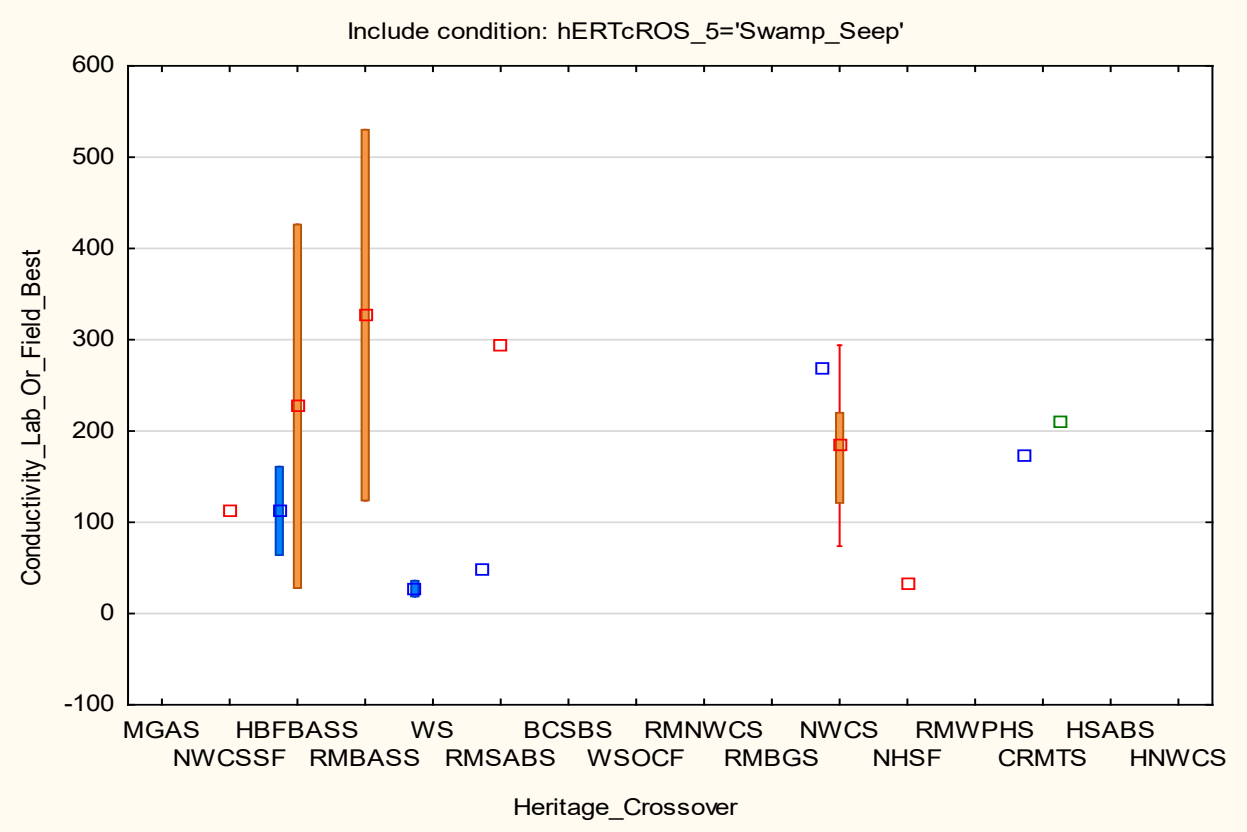

Include condition: hERTcROS_5='Swamp_Seep'
Hydro water pH
8.6
8.4
8.2
8.0
7.8
7.6
7.4
7.2
7.0
6.8
6.6
6.4
6.2
6.0
5.8
5.6
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

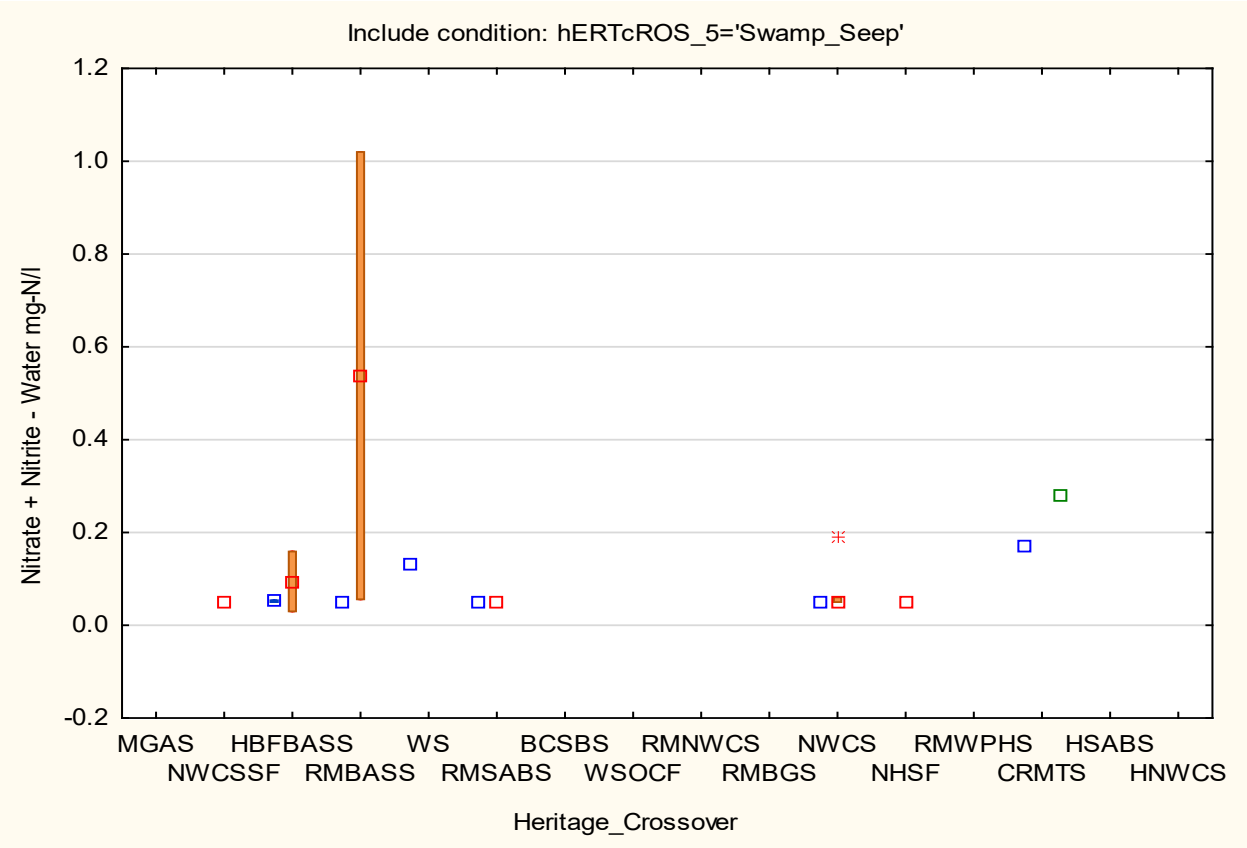
Appendix D.


Include condition: hERTcROS_5='Swamp_Seep'
DO MG/L
12
10
8
6
4
2
0
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

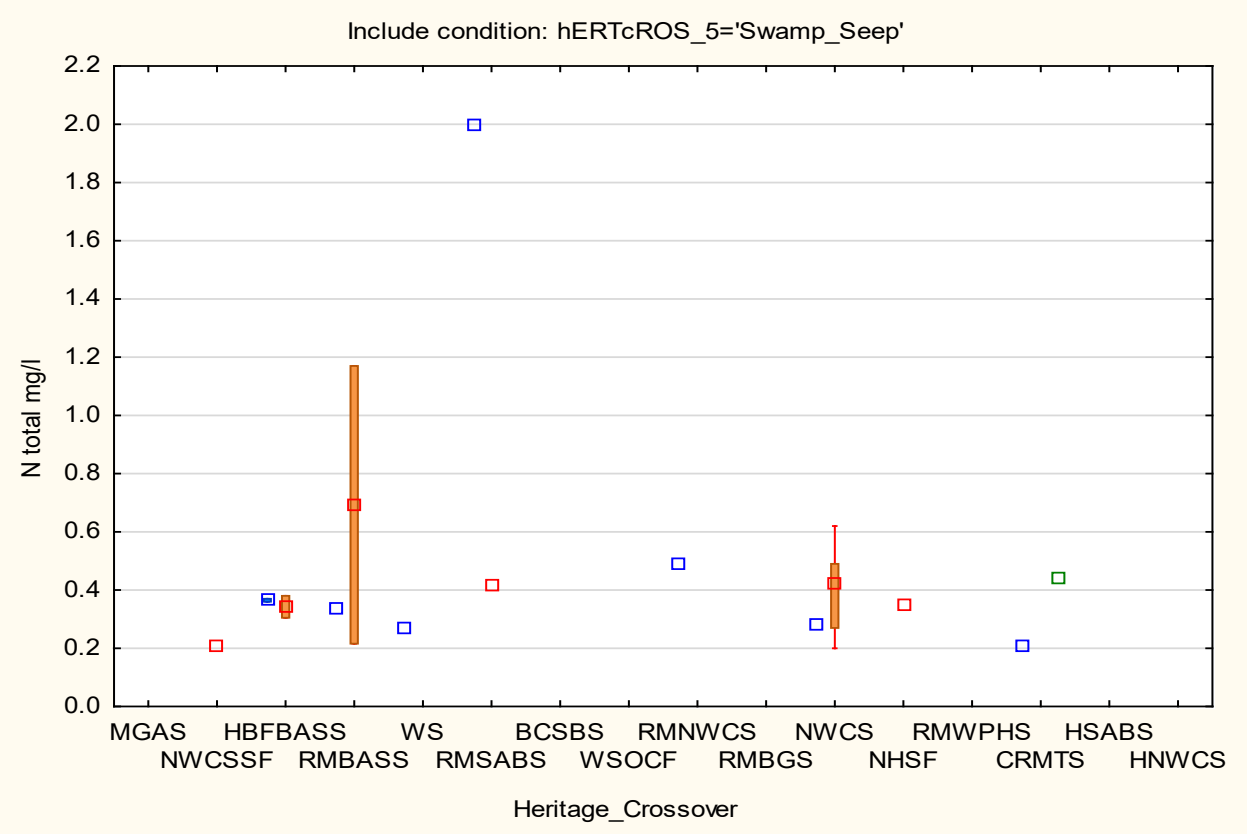

Include condition: hERTcROS_5='Swamp_Seep'
Chloride - Water mg/l
120
100
80
60
40
20
0
-20
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

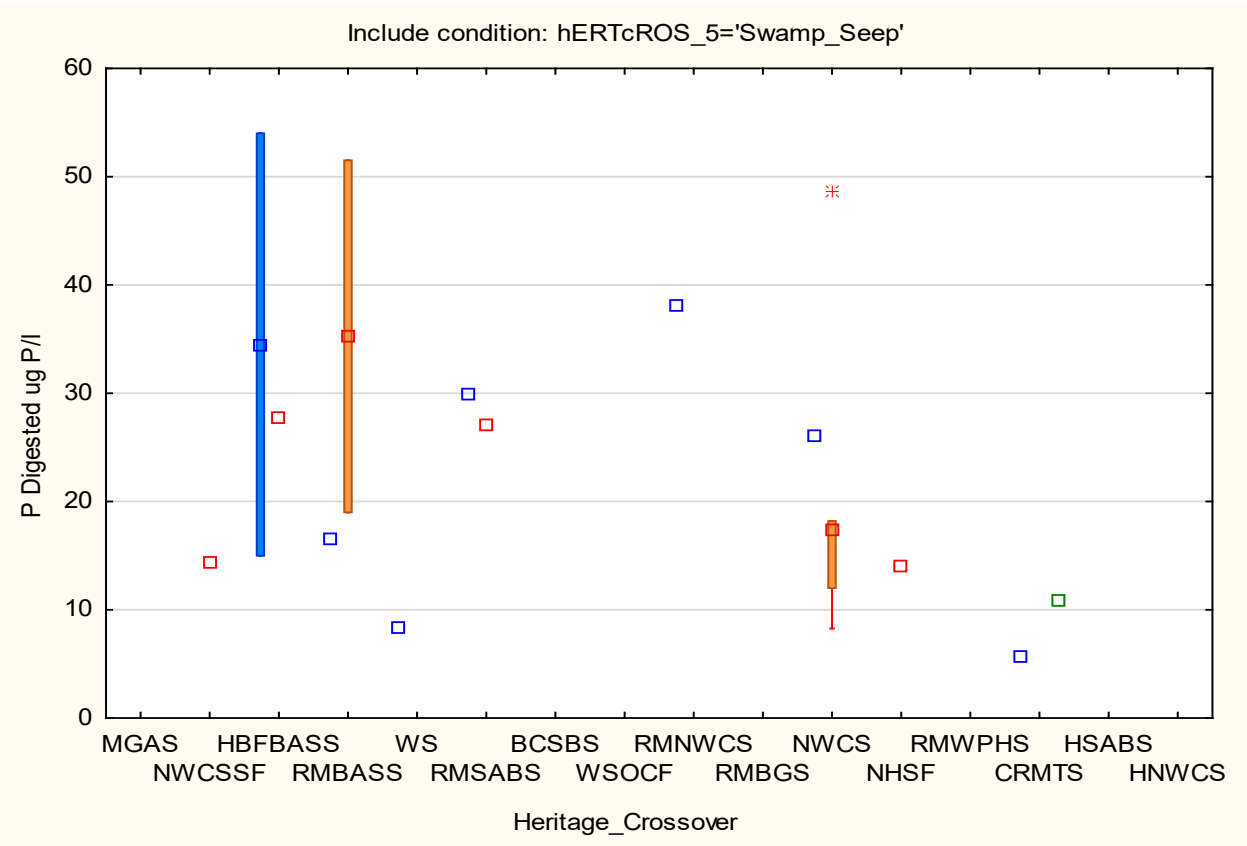
Appendix D.


Include condition: hERTcROS_5='Swamp_Seep'
Conductivity_Lab_Or_Field_Best
600
500
400
300
200
100
0
-100
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

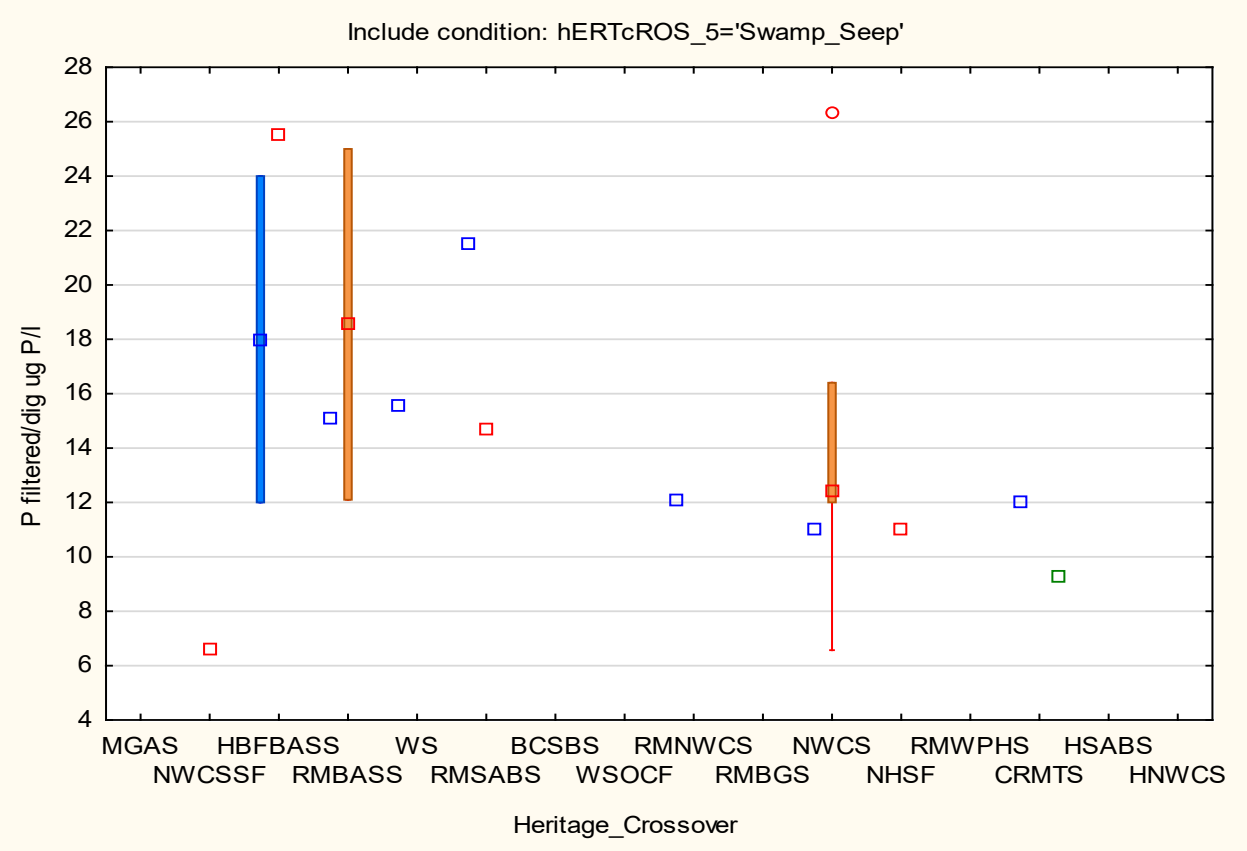

Include condition: hERTcROS_5='Swamp_Seep'
Nitrate + Nitrite - Water mg-N/l
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

Appendix D.


Include condition: hERTcROS_5='Swamp_Seep'
N total mg/l
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover


Include condition: hERTcROS_5='Swamp_Seep'
P Digested ug P/l
60
50
40
30
20
10
0
MGAS
NWCSSF
HBFBASS
RMBASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

Appendix D.


Include condition: hERTcROS_5='Swamp_Seep'
P filtered/dig ug P/l
28
26
24
22
20
18
16
14
12
10
8
6
4
MGAS
NWCSSF
HBF
RMBASS
BASS
WS
RMSABS
BCSBS
WSOCF
RMNWCS
RMBGS
NWCS
NHSF
RMWPHS
CRMTS
HSABS
HNWCS
Heritage_Crossover

Appendix E.

Appendix E. Site identifiers, survey type, a priori disturbance category, coordinates, wetland classification, metric values, index, and preliminary narrative condition. Data are as calculated for calibration, not including samples without site classifications.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
1	225	Heritage	Ref	43.7361	-72.6635	Swamp_Seep	99.1	4.4	60.2	Good
2	226	Heritage	Ref	43.9542	-72.2541	Swamp_Seep	99.2	4.5	61.7	Good
3	227	Heritage	Ref	43.8657	-72.2517	Swamp_Seep	100	4.7	68.1	Excellent
4	228	Heritage	Ref	43.4494	-72.5118	Swamp_Seep	98.7	4.3	56.9	Fair
5	229	Heritage	Ref	44.0199	-72.1067	Swamp_Seep	100	4.4	64.3	Good
6	230	Heritage	Ref	44.0901	-72.0549	Swamp_Seep	98.2	4.2	53.7	Fair
7	231	Heritage	Ref	43.8263	-72.1994	Swamp_Seep	96.4	4	42.7	Fair
8	232	Heritage	Ref	43.8236	-72.1986	Swamp_Seep	97	4.3	49.4	Fair
9	233	Heritage	Ref	44.5175	-73.2529	Swamp_Seep	98.4	5.1	65.8	Excellent
10	234	Heritage	Ref	43.2895	-72.4189	Swamp_Seep	98	4.7	58.6	Fair
11	235	Heritage	Ref	44.3643	-71.8511	Swamp_Seep	99.2	4.6	63.7	Good
12	236	Heritage	Ref	44.3636	-72.3778	Swamp_Seep	100	4.7	69	Excellent
13	237	Heritage	Ref	44.0429	-72.1055	Swamp_Seep	100	4.7	68.9	Excellent
14	238	Heritage	Ref	43.5305	-72.4206	Swamp_Seep	98.9	4.2	57.1	Fair
16	240	Heritage	Ref	43.1416	-72.4728	Swamp_Seep	98.2	4.6	58.6	Fair
17	241	Heritage	Ref	42.9797	-72.4962	Swamp_Seep	98	4.7	58.4	Fair
18	242	Heritage	Ref	42.8272	-73.1773	Swamp_Seep	96	4.5	47.2	Fair
19	243	Heritage	Ref	43.3626	-72.9844	Swamp_Seep	100	4.8	69.6	Excellent
21	245	Heritage	Ref	42.8956	-73.244	Swamp_Seep	95.8	4.4	43.8	Fair
22	246	Heritage	Ref	43.0690	-72.6334	Swamp_Seep	100	4.6	67.5	Excellent
23	247	Heritage	Ref	43.3560	-73.2367	Swamp_Seep	100	4.7	68.5	Excellent
24	248	Heritage	Ref	43.1452	-73.0797	Swamp_Seep	93.5	3.9	26.6	Poor
25	249	Heritage	Ref	43.1155	-72.9464	SpruceSwamp	100	4.8	69.2	Fair

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
26	250	Heritage	Ref	42.9899	-72.5146	Swamp_Seep	97.4	4.7	56.5	Fair
27	251	Heritage	Ref	43.9194	-73.1775	Swamp_Seep	99	4.3	59	Fair
28	253	Heritage	Ref	43.8961	-73.2114	Swamp_Seep	100	4.7	68.1	Excellent
29	254	Heritage	Ref	42.7312	-72.5566	Swamp_Seep	100	4.6	67.3	Excellent
30	255	Heritage	Ref	42.7330	-72.5446	Swamp_Seep	100	4.8	69.1	Excellent
31	256	Heritage	Ref	42.8201	-73.1877	Swamp_Seep	100	4.7	68.9	Excellent
32	257	Heritage	Ref	43.0872	-73.1163	Swamp_Seep	100	4.7	68.6	Excellent
33	258	Heritage	Ref	43.0861	-73.1168	Swamp_Seep	99.3	4.6	64.2	Good
34	259	Heritage	Ref	42.8850	-73.2225	Swamp_Seep	99.1	4.7	64.7	Good
37	263	Heritage	Ref	44.5043	-72.6246	Swamp_Seep	97.4	4.1	47.7	Fair
38	265	Heritage	Ref	42.7324	-72.5044	Swamp_Seep	100	4.8	70.1	Excellent
39	266	Heritage	Ref	43.3435	-72.9821	Swamp_Seep	100	5	72.7	Excellent
40	267	Heritage	Ref	44.4294	-72.7565	Swamp_Seep	99.3	4.9	67.5	Excellent
41	268	Heritage	Ref	44.4294	-72.7565	Swamp_Seep	100	4.5	66	Excellent
42	269	Heritage	Ref	44.8698	-73.2976	Swamp_Seep	98.7	4.8	63.1	Good
43	270	Heritage	Ref	44.8784	-73.2938	Swamp_Seep	100	5.2	75	Excellent
44	271	Heritage	Ref	44.8788	-73.2956	Swamp_Seep	100	4.8	69.4	Excellent
45	272	Heritage	Ref	43.8836	-73.1904	Swamp_Seep	95.2	4.3	40.5	Fair
46	273	Heritage	Ref	43.9761	-73.1457	Swamp_Seep	98.4	4.3	55.6	Fair
47	274	Heritage	Ref	43.9762	-73.1453	Swamp_Seep	95.3	4.2	39	Poor
49	277	Heritage	Ref	42.7388	-72.5035	Swamp_Seep	99	4.5	61.4	Good
50	278	Heritage	Ref	44.9739	-72.7481	Swamp_Seep	100	5	72.8	Excellent
51	280	Heritage	Ref	43.9148	-73.3237	Swamp_Seep	97.3	4.1	47.5	Fair
52	281	Heritage	Ref	43.9148	-73.3229	Swamp_Seep	96.8	4.5	50.7	Fair
53	282	Heritage	Ref	44.0416	-73.1512	Swamp_Seep	98.7	4.4	58.8	Fair
54	283	Heritage	Ref	44.0907	-73.1585	Swamp_Seep	99	4.6	61.8	Good
55	284	Heritage	Ref	44.0072	-73.0776	Swamp_Seep	100	4.4	64.8	Good

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
56	285	Heritage	Ref	44.9945	-73.2678	Swamp_Seep	96.8	4.1	45.5	Fair
57	286	Heritage	Ref	43.3802	-73.1535	Swamp_Seep	100	4.5	65.8	Excellent
60	289	Heritage	Ref	44.0067	-72.5379	Swamp_Seep	100	4.8	69.2	Excellent
61	290	Heritage	Ref	44.2288	-73.173	Swamp_Seep	99.1	4.8	65.8	Excellent
63	292	Heritage	Ref	44.2408	-73.1775	Swamp_Seep	98.7	4.6	60.6	Good
65	294	Heritage	Ref	43.0889	-73.1181	Swamp_Seep	100	4.7	68.2	Excellent
66	295	Heritage	Ref	44.0425	-73.15	Swamp_Seep	98.2	4.5	57.6	Fair
67	296	Heritage	Ref	43.3180	-72.9867	Swamp_Seep	98.9	5	67.7	Excellent
68	297	Heritage	Ref	44.1848	-73.09	Swamp_Seep	100	4.5	65.4	Excellent
69	298	Heritage	Ref	42.9210	-72.5481	Swamp_Seep	100	4.8	69.3	Excellent
70	299	Heritage	Ref	44.9279	-73.1599	Swamp_Seep	97.6	4.8	58.5	Fair
71	300	Heritage	Ref	43.7526	-73.3392	Swamp_Seep	100	4.6	66.4	Excellent
72	301	Heritage	Ref	43.1043	-73.0964	Swamp_Seep	100	4.9	70.8	Excellent
74	303	Heritage	Ref	43.0701	-73.1082	Swamp_Seep	96.7	4.6	50.9	Fair
75	304	Heritage	Ref	43.7425	-73.2943	Swamp_Seep	97.4	4.8	57.3	Fair
76	306	Heritage	Ref	43.3406	-72.4389	Swamp_Seep	98.7	4.2	55.7	Fair
77	307	Heritage	Ref	44.0950	-72.0681	Swamp_Seep	100	5.1	73.6	Excellent
78	308	Heritage	Ref	43.7350	-73.2888	Swamp_Seep	100	4.6	66.9	Excellent
79	309	Heritage	Ref	43.6679	-73.2797	Swamp_Seep	100	4.2	62.1	Good
80	310	Heritage	Ref	43.6265	-73.1913	Swamp_Seep	98.8	4.5	59.7	Fair
82	312	Heritage	Ref	44.7326	-73.2642	Swamp_Seep	94.9	3.9	33.7	Poor
83	313	Heritage	Ref	45.0076	-73.2328	Swamp_Seep	97.7	4.1	50	Fair
84	314	Heritage	Ref	44.3211	-72.5015	Swamp_Seep	97.4	4	47.5	Fair
85	315	Heritage	Ref	43.2950	-72.4205	Swamp_Seep	100	5.2	75.1	Excellent
86	316	Heritage	Ref	43.0999	-72.6158	Swamp_Seep	100	4.8	69.5	Excellent
87	317	Heritage	Ref	44.3875	-72.4854	Swamp_Seep	100	4.8	69.1	Excellent
88	318	Heritage	Ref	43.3434	-72.982	Swamp_Seep	99.2	4.7	64.8	Good

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
89	319	Heritage	Ref	43.2968	-72.5483	Swamp_Seep	100	4.4	64.4	Good
90	339	Heritage	Ref	44.5228	-73.1072	Swamp_Seep	100	5.3	75.9	Excellent
91	340	Heritage	Ref	44.3113	-73.1815	Swamp_Seep	100	4.5	65.6	Excellent
92	341	Heritage	Ref	44.6696	-73.1436	Swamp_Seep	100	4.5	66	Excellent
93	342	Heritage	Ref	44.6803	-73.1494	Swamp_Seep	98.4	4.4	56.7	Fair
94	343	Heritage	Ref	43.8823	-73.1886	Swamp_Seep	98.8	4.5	59.8	Fair
95	344	Heritage	Ref	44.3707	-73.1431	Swamp_Seep	98.2	4.4	56.2	Fair
96	345	Heritage	Ref	44.5749	-73.1654	Swamp_Seep	90.2	3.6	7.9	Poor
97	346	Heritage	Ref	44.6238	-73.0547	Swamp_Seep	100	4.7	67.8	Excellent
98	347	Heritage	Ref	43.9177	-73.188	Swamp_Seep	97.7	3.8	45.8	Fair
99	348	Heritage	Ref	43.8851	-73.1251	Swamp_Seep	100	4.6	67.3	Excellent
100	349	Heritage	Ref	43.8556	-73.0673	Swamp_Seep	100	5	72.6	Excellent
101	350	Heritage	Ref	44.4475	-73.1324	Swamp_Seep	100	4.4	64.6	Good
102	351	Heritage	Ref	43.8180	-73.1345	Swamp_Seep	98.8	4.4	59.2	Fair
103	352	Heritage	Ref	44.5222	-73.1036	Swamp_Seep	100	4.4	64	Good
104	353	Heritage	Ref	43.7779	-72.2294	Swamp_Seep	100	4.8	69.4	Excellent
105	361	Heritage	Ref	44.6781	-71.7062	Fen	100	5.2	74.6	Fair
106	364	Heritage	Ref	44.6809	-71.7057	Fen	100	5.3	76.9	Fair
107	366	Heritage	Ref	44.8345	-71.7821	SpruceSwamp	100	6.9	96.9	Excellent
108	367	Heritage	Ref	44.8465	-71.7466	SpruceSwamp	100	4.9	70.6	Good
109	368	Heritage	Ref	44.2857	-72.1626	Swamp_Seep	100	5	73	Excellent
110	370	Heritage	Ref	44.7453	-71.9802	Swamp_Seep	100	4.8	69.3	Excellent
111	371	Heritage	Ref	44.4789	-72.1768	Swamp_Seep	98.9	5	67	Excellent
112	372	Heritage	Ref	44.1983	-72.583	Swamp_Seep	98.5	4.1	53	Fair
113	373	Heritage	Ref	44.2153	-72.5637	Swamp_Seep	97.8	4.4	54.9	Fair
114	374	Heritage	Ref	44.6906	-72.354	Swamp_Seep	98.9	5	67.7	Excellent
115	375	Heritage	Ref	44.9044	-72.2396	Swamp_Seep	100	4.8	69.3	Excellent

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
116	376	Heritage	Ref	44.7356	-72.37	Swamp_Seep	99	5	66.9	Excellent
117	377	Heritage	Ref	44.3596	-72.4998	Swamp_Seep	100	4.9	71.1	Excellent
118	378	Heritage	Ref	43.8178	-73.139	Swamp_Seep	98.7	4.7	62.1	Good
119	379	Heritage	Ref	44.8121	-71.8953	Swamp_Seep	100	5.4	77	Excellent
120	380	Heritage	Ref	44.6402	-72.1907	Swamp_Seep	100	5.2	74.8	Excellent
121	381	Heritage	Ref	44.6235	-71.9652	Swamp_Seep	100	5.2	75	Excellent
122	382	Heritage	Ref	44.6445	-72.0615	Swamp_Seep	100	5.2	75	Excellent
123	383	Heritage	Ref	43.5820	-73.2809	Swamp_Seep	100	5	71.8	Excellent
124	384	Heritage	Ref	44.5137	-72.2156	Swamp_Seep	100	4.8	70.1	Excellent
125	385	Heritage	Ref	44.6724	-72.2442	Swamp_Seep	100	5.1	73.2	Excellent
126	386	Heritage	Ref	43.9384	-73.1972	Swamp_Seep	96.8	4.3	47.3	Fair
127	387	Heritage	Ref	43.9227	-73.1863	Swamp_Seep	99.1	4.8	65.2	Excellent
128	388	Heritage	Ref	43.9373	-73.1977	Swamp_Seep	97.9	5	62.8	Good
129	389	Heritage	Ref	43.9384	-73.186	Swamp_Seep	100	4.7	68.2	Excellent
130	390	Heritage	Ref	44.6945	-72.0297	Swamp_Seep	100	4.7	68.1	Excellent
131	391	Heritage	Ref	43.8852	-73.0153	Swamp_Seep	100	4.5	66.2	Excellent
132	392	Heritage	Ref	43.4510	-73.018	Swamp_Seep	98.9	4.1	55.6	Fair
133	393	Heritage	Ref	44.3507	-72.1285	Swamp_Seep	96.5	4.3	47.1	Fair
134	394	Heritage	Ref	44.3718	-72.1669	Swamp_Seep	100	5.9	84	Excellent
135	395	Heritage	Ref	44.7672	-73.0075	Swamp_Seep	100	4.6	66.7	Excellent
136	396	Heritage	Ref	44.5715	-72.2058	Swamp_Seep	99	4.6	62.7	Good
137	397	Heritage	Ref	44.5705	-72.2008	Swamp_Seep	100	5	72.7	Excellent
138	398	Heritage	Ref	44.5341	-71.5893	Swamp_Seep	100	4.8	70	Excellent
139	399	Heritage	Ref	44.4699	-72.3371	Swamp_Seep	100	5.1	73.4	Excellent
140	400	Heritage	Ref	43.6029	-73.2225	Swamp_Seep	99.1	4.6	62.4	Good
141	401	Heritage	Ref	44.4283	-72.227	Swamp_Seep	93.3	4.5	34.3	Poor
142	402	Heritage	Ref	44.1835	-72.22	Swamp_Seep	100	5	72.4	Excellent

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
143	403	Heritage	Ref	44.9599	-71.739	Swamp_Seep	100	5	72.7	Excellent
144	404	Heritage	Ref	44.8821	-72.1941	Swamp_Seep	97.2	4.7	55.3	Fair
145	405	Heritage	Ref	43.8375	-73.1599	Swamp_Seep	98.1	4.7	60.1	Good
146	406	Heritage	Ref	43.8354	-73.157	Swamp_Seep	97.6	4.6	56.1	Fair
147	407	Heritage	Ref	44.6165	-72.2624	Swamp_Seep	98.7	5.2	68.6	Excellent
148	408	Heritage	Ref	44.7804	-72.0729	Swamp_Seep	100	5.1	74	Excellent
149	409	Heritage	Ref	44.7005	-72.0576	Swamp_Seep	98.6	4.5	58.6	Fair
150	411	Heritage	Ref	44.3804	-72.2665	Swamp_Seep	99	4.8	64.8	Good
151	412	Heritage	Ref	45.0108	-72.9547	Swamp_Seep	100	5.3	75.8	Excellent
152	413	Heritage	Ref	43.6841	-73.2228	Swamp_Seep	100	5.2	74.5	Excellent
153	414	Heritage	Ref	44.9333	-72.0133	Swamp_Seep	100	5.1	73.4	Excellent
154	415	Heritage	Ref	44.9169	-72.0502	Swamp_Seep	98.7	5.1	68.4	Excellent
155	416	Heritage	Ref	44.0694	-72.0789	Swamp_Seep	100	5.2	74.5	Excellent
156	417	Heritage	Ref	44.9355	-71.8856	Swamp_Seep	100	5.2	74.4	Excellent
157	418	Heritage	Ref	44.7564	-71.7122	Swamp_Seep	100	4.8	69.5	Excellent
158	419	Heritage	Ref	44.6153	-72.1985	Swamp_Seep	100	5.3	75.9	Excellent
159	420	Heritage	Ref	44.1817	-72.1782	Swamp_Seep	100	5.5	78.9	Excellent
160	421	Heritage	Ref	44.1851	-72.1976	Swamp_Seep	100	4.8	70.3	Excellent
161	422	Heritage	Ref	44.2263	-73.1142	Swamp_Seep	100	4.9	70.8	Excellent
162	423	Heritage	Ref	44.2554	-72.3801	Swamp_Seep	100	4.6	66.9	Excellent
163	424	Heritage	Ref	44.2717	-72.1205	Swamp_Seep	100	4.9	71	Excellent
164	425	Heritage	Ref	44.8695	-73.293	Swamp_Seep	97.3	4.7	56.5	Fair
165	426	Heritage	Ref	43.8813	-73.1156	Swamp_Seep	98.6	5.2	67.7	Excellent
166	427	Heritage	Ref	43.8969	-73.1275	Swamp_Seep	100	5.1	73	Excellent
167	428	Heritage	Ref	44.6099	-72.3213	Swamp_Seep	98.8	5	66.6	Excellent
168	429	Heritage	Ref	44.7328	-71.9741	Swamp_Seep	100	4.9	70.6	Excellent
169	430	Heritage	Ref	43.7967	-73.0606	Swamp_Seep	96.6	4.4	49.1	Fair

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
170	431	Heritage	Ref	44.7756	-72.1143	Swamp_Seep	100	5.7	81.4	Excellent
171	432	Heritage	Ref	44.8405	-72.3724	Swamp_Seep	100	4.9	71.4	Excellent
172	433	Heritage	Ref	43.4715	-73.0346	Swamp_Seep	98.9	4.4	59.3	Fair
173	435	Heritage	Ref	44.5978	-72.178	Swamp_Seep	98.6	4.8	63.1	Good
174	436	Heritage	Ref	44.5316	-71.8091	Swamp_Seep	100	5.1	73.3	Excellent
175	437	Heritage	Ref	44.5233	-71.8095	Swamp_Seep	100	5.3	76.4	Excellent
176	438	Heritage	Ref	43.4509	-73.2383	Swamp_Seep	100	4.5	66.1	Excellent
177	439	Heritage	Ref	44.7701	-71.7518	Swamp_Seep	100	5.4	77.3	Excellent
178	440	Heritage	Ref	44.7892	-72.0909	Swamp_Seep	100	5.1	73.1	Excellent
179	441	Heritage	Ref	44.6923	-71.6695	Swamp_Seep	100	5	72.7	Excellent
180	442	Heritage	Ref	44.8861	-73.0071	Swamp_Seep	100	4.6	66.5	Excellent
181	450	Heritage	Ref	43.0865	-73.0231	SpruceSwamp	100	5.1	73.6	Good
182	452	Heritage	Ref	44.7130	-72.4422	Swamp_Seep	100	4.6	67.2	Excellent
183	453	Heritage	Ref	44.4652	-72.9173	Swamp_Seep	100	4.8	69.3	Excellent
184	455	Heritage	Ref	44.3148	-72.3092	SpruceSwamp	100	5.7	81.9	Excellent
185	456	Heritage	Ref	44.5327	-71.8051	SpruceSwamp	100	6.3	89.7	Excellent
186	457	Heritage	Ref	42.7743	-72.5561	Swamp_Seep	100	4.7	68.5	Excellent
187	458	Heritage	Ref	42.7471	-72.4977	Swamp_Seep	97.9	4.8	59.3	Fair
188	459	Heritage	Ref	43.4202	-73.0475	Swamp_Seep	96.4	4.6	49.8	Fair
189	460	Heritage	Ref	43.4674	-73.0268	Swamp_Seep	98.4	5.3	68.7	Excellent
190	462	Heritage	Ref	44.8100	-71.8957	SpruceSwamp	100	4.6	66.6	Fair
191	463	Heritage	Ref	43.0844	-73.0231	SpruceSwamp	100	4.5	66.4	Fair
192	468	Heritage	Ref	44.7345	-71.6607	Fen	100	7	98.7	Excellent
193	470	Heritage	Ref	44.7627	-71.7201	Beaver_Other	100	3.9	58.3	Good
194	473	Heritage	Ref	42.9333	-73.0223	SpruceSwamp	100	4.9	70.5	Good
195	474	Heritage	Ref	43.7771	-72.4011	Swamp_Seep	100	4.7	68.9	Excellent
196	475	Heritage	Ref	44.7582	-72.6298	SpruceSwamp	100	5.1	74.2	Good

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
197	477	Heritage	Ref	44.3268	-72.4804	Swamp_Seep	100	5.4	77.2	Excellent
198	478	Heritage	Ref	43.9649	-72.1464	Swamp_Seep	100	4.8	69.6	Excellent
199	479	Heritage	Ref	43.9589	-72.1342	Swamp_Seep	100	4.8	70.4	Excellent
200	480	Heritage	Ref	43.7335	-73.1704	SpruceSwamp	100	4.6	66.7	Fair
201	482	Heritage	Ref	43.4506	-73.2173	Swamp_Seep	100	4.4	64.5	Good
202	483	Heritage	Ref	42.7804	-72.9888	SpruceSwamp	100	4.8	69.8	Fair
203	484	Heritage	Ref	44.2993	-72.2425	SpruceSwamp	100	5.2	75	Excellent
204	485	Heritage	Ref	44.2999	-72.2401	SpruceSwamp	100	5.9	83.7	Excellent
205	486	Heritage	Ref	44.2977	-72.2388	SpruceSwamp	100	6.5	92.1	Excellent
206	487	Heritage	Ref	44.7647	-71.7392	SpruceSwamp	100	5.4	78.1	Excellent
207	488	Heritage	Ref	44.8062	-71.8333	SpruceSwamp	100	5.7	81.9	Excellent
208	489	Heritage	Ref	44.5894	-72.4267	SpruceSwamp	100	5	72.4	Good
209	490	Heritage	Ref	43.0207	-72.5124	Swamp_Seep	97.1	4.2	47.5	Fair
210	491	Heritage	Ref	43.9526	-72.1464	SpruceSwamp	100	5.5	78.9	Excellent
211	493	Heritage	Ref	44.6452	-72.5145	SpruceSwamp	100	5.3	76.1	Excellent
212	494	Heritage	Ref	43.9382	-73.1233	Swamp_Seep	100	4.8	69.8	Excellent
213	496	Heritage	Ref	44.8860	-73.2887	SpruceSwamp	100	5.8	82.5	Excellent
214	497	Heritage	Ref	44.0729	-72.2468	Swamp_Seep	97.7	4.3	51.8	Fair
215	498	Heritage	Ref	44.0034	-72.2793	Swamp_Seep	99	4.7	63.7	Good
216	499	Heritage	Ref	44.5742	-71.5825	SpruceSwamp	97.8	4.3	53	Fair
217	500	Heritage	Ref	42.9725	-72.9779	SpruceSwamp	100	4.7	68.5	Fair
218	501	Heritage	Ref	44.4305	-72.4221	SpruceSwamp	100	5.2	75.1	Excellent
219	503	Heritage	Ref	43.3052	-72.5669	SpruceSwamp	100	4.7	68.5	Fair
220	504	Heritage	Ref	44.7252	-73.025	Swamp_Seep	98.8	4.9	65.1	Excellent
221	507	Heritage	Ref	44.8067	-71.7872	SpruceSwamp	100	4.6	66.6	Fair
222	508	Heritage	Ref	43.4022	-72.8833	SpruceSwamp	100	4.6	67.3	Fair
223	509	Heritage	Ref	44.0430	-72.9678	SpruceSwamp	100	4.6	66.7	Fair

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
224	510	Heritage	Ref	43.9178	-72.9808	SpruceSwamp	100	4.8	69.1	Fair
225	511	Heritage	Ref	43.4256	-73.0447	Swamp_Seep	97.1	4.3	50	Fair
226	512	Heritage	Ref	44.8872	-72.1972	Beaver_Other	100	5	72	Excellent
227	513	Heritage	Ref	43.0833	-73.0131	SpruceSwamp	97.3	4.6	54.9	Fair
228	514	Heritage	Ref	43.0939	-73.008	SpruceSwamp	100	5	71.9	Good
229	515	Heritage	Ref	45.0108	-73.2578	Swamp_Seep	100	4.8	70.3	Excellent
230	516	Heritage	Ref	44.2733	-73.1156	Swamp_Seep	99.3	4.7	65.5	Excellent
231	517	Heritage	Ref	43.2645	-73.0943	Fen	100	4.6	66.5	Fair
232	519	Heritage	Ref	43.2644	-73.0941	Fen	100	4.4	64.5	Fair
233	520	Heritage	Ref	43.2637	-73.0931	Fen	100	5.1	73.5	Fair
234	521	Heritage	Ref	42.8380	-73.1202	Fen	100	5.3	76.8	Fair
235	522	Heritage	Ref	42.8381	-73.1194	Fen	100	4.9	70.7	Fair
236	523	Heritage	Ref	42.8023	-73.192	Fen	100	6.2	87.7	Good
237	524	Heritage	Ref	42.8024	-73.1917	Fen	100	6.6	93.8	Excellent
238	525	Heritage	Ref	42.8026	-73.1916	Fen	100	6.7	95.1	Excellent
239	526	Heritage	Ref	42.8028	-73.1908	Fen	100	7	98.7	Excellent
240	527	Heritage	Ref	42.8466	-73.1253	Fen	100	4.4	63.8	Fair
241	528	Heritage	Ref	42.9315	-73.2156	Fen	100	5.3	76.5	Fair
242	529	Heritage	Ref	42.9315	-73.2156	Fen	100	4.6	67.4	Fair
243	530	Heritage	Ref	42.9583	-73.1961	Fen	94.4	3.7	29	Poor
244	531	Heritage	Ref	42.9584	-73.1961	Fen	91	3.5	10	Poor
245	535	Heritage	Ref	43.1820	-73.0549	Fen	100	5.8	82.6	Good
246	536	Heritage	Ref	43.1820	-73.0552	Fen	100	5.7	81.5	Good
247	537	Heritage	Ref	43.8584	-72.431	Fen	100	5	72.4	Fair
248	538	Heritage	Ref	43.8588	-72.4314	Fen	100	4.8	69.1	Fair
249	539	Heritage	Ref	43.8596	-72.4319	Fen	100	4.6	67.4	Fair
250	540	Heritage	Ref	42.9272	-73.2072	Fen	100	4.8	69.3	Fair

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
251	541	Heritage	Ref	43.1070	-72.7656	Swamp_Seep	100	4.8	70.1	Excellent
252	542	Heritage	Ref	43.2220	-72.8738	Fen	100	7.7	100	Excellent
253	543	Heritage	Ref	43.1546	-72.7972	Beaver_Other	92.6	3.5	17.3	Poor
254	544	Heritage	Ref	43.1546	-72.7972	Beaver_Other	95.7	3.2	29.8	Poor
255	545	Heritage	Ref	43.1546	-72.7972	Beaver_Other	96.4	3.3	33	Fair
256	546	Heritage	Ref	43.2988	-72.7888	Swamp_Seep	100	4.5	66.2	Excellent
257	547	Heritage	Ref	43.3371	-72.8093	Swamp_Seep	98	4.7	58.8	Fair
258	553	Heritage	Ref	43.6178	-72.3915	Swamp_Seep	98.4	3.8	49	Fair
259	556	Heritage	Ref	43.6846	-72.4405	Fen	100	5.1	73.5	Fair
260	557	Heritage	Ref	43.7208	-72.4201	Beaver_Other	100	5.5	78.9	Excellent
261	558	Heritage	Ref	43.7126	-72.6195	Fen	100	5.8	82.2	Good
262	559	Heritage	Ref	43.7123	-72.6191	Fen	100	6.7	94.3	Excellent
263	560	Heritage	Ref	43.7122	-72.6186	Fen	100	8	100	Excellent
264	561	Heritage	Ref	43.7126	-72.6194	Fen	100	5.7	81.1	Good
265	562	Heritage	Ref	43.8023	-72.3986	Fen	100	5.8	82.9	Good
266	563	Heritage	Ref	43.0229	-73.182	Fen	100	6.8	96.3	Excellent
267	564	Heritage	Ref	43.0233	-73.1815	Fen	100	6.3	89.9	Good
268	565	Heritage	Ref	43.1964	-73.069	Fen	100	5.4	77.2	Fair
269	566	Heritage	Ref	43.1965	-73.0687	Fen	100	5.6	80.5	Good
270	567	Heritage	Ref	43.1958	-73.0682	Fen	100	4.7	68.6	Fair
271	569	Heritage	Ref	43.2199	-73.0529	Fen	100	4.3	63.2	Fair
272	573	Heritage	Ref	43.2540	-73.0543	Fen	100	4.2	61.7	Fair
273	574	Heritage	Ref	43.2540	-73.0543	Fen	100	4.6	67.4	Fair
274	575	Heritage	Ref	43.4286	-73.0204	Swamp_Seep	100	4.3	63.6	Good
275	576	Heritage	Ref	43.4004	-73.0459	Fen	100	5.7	81.9	Good
276	577	Heritage	Ref	43.4038	-73.0438	Fen	100	6.6	93.8	Excellent
277	578	Heritage	Ref	43.4038	-73.0435	Fen	100	5.5	78.9	Fair

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
278	579	Heritage	Ref	43.4035	-73.043	Fen	100	5.5	79.5	Fair
279	580	Heritage	Ref	43.4057	-73.0429	Fen	100	6.6	93	Excellent
280	581	Heritage	Ref	43.4066	-73.0435	Fen	100	6.5	92.1	Excellent
281	582	Heritage	Ref	43.4039	-73.0437	Fen	100	6.7	94.9	Excellent
282	583	Heritage	Ref	43.4039	-73.0439	Fen	100	7	98.7	Excellent
283	584	Heritage	Ref	43.4037	-73.0435	Fen	100	6.2	88.2	Good
284	585	Heritage	Ref	43.4022	-73.0433	Fen	100	6.8	95.8	Excellent
285	586	Heritage	Ref	43.4026	-73.0432	Fen	100	6.8	96.5	Excellent
286	587	Heritage	Ref	43.4034	-73.0429	Fen	100	6.7	94.7	Excellent
287	589	Heritage	Ref	42.8051	-73.2749	Floodplain	81.7	3.6	3.7	Poor
288	590	Heritage	Ref	42.8051	-73.2749	Floodplain	68	3.2	0	Poor
289	591	Heritage	Ref	42.8972	-73.2212	Floodplain	71.3	3.2	0	Poor
293	595	Heritage	Ref	43.7721	-72.4491	Floodplain	93.7	3.5	22.8	Good
294	596	Heritage	Ref	43.8642	-72.6407	Floodplain	95.1	4.1	37	Excellent
295	604	Heritage	Ref	43.7353	-72.6635	Fen	100	6.2	87.7	Good
296	605	Heritage	Ref	44.5936	-71.9763	Fen	100	7.3	100	Excellent
297	606	Heritage	Ref	44.1755	-73.0958	Fen	100	7.3	100	Excellent
298	607	Heritage	Ref	44.7374	-71.6704	Fen	100	7.9	100	Excellent
299	608	Heritage	Ref	44.7259	-71.656	Fen	100	7	98.7	Excellent
300	609	Heritage	Ref	44.7285	-71.6601	Fen	100	7.5	100	Excellent
301	610	Heritage	Ref	44.7290	-71.6614	Fen	100	7.2	100	Excellent
302	611	Heritage	Ref	44.1871	-72.1729	Fen	100	6.1	87.2	Good
303	612	Heritage	Ref	44.2911	-72.2396	Fen	100	7.6	100	Excellent
304	613	Heritage	Ref	44.2960	-72.2378	Fen	100	7.8	100	Excellent
305	615	Heritage	Ref	43.6965	-72.9121	Fen	100	6.3	89.1	Good
306	616	Heritage	Ref	43.0983	-73.0681	Fen	100	6.8	96.3	Excellent
307	617	Heritage	Ref	43.0985	-73.0663	Fen	100	5.9	84.3	Good

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
308	618	Heritage	Ref	42.8030	-73.1908	Fen	100	6.5	92.1	Excellent
309	619	Heritage	Ref	42.8023	-73.1909	Fen	100	5.8	83.1	Good
310	620	Heritage	Ref	42.8023	-73.1914	Fen	100	6	85.5	Good
311	621	Heritage	Ref	43.8423	-73.0782	Fen	100	6.8	95.4	Excellent
312	622	Heritage	Ref	43.8411	-73.0784	Fen	100	6.6	93.3	Excellent
313	623	Heritage	Ref	43.3376	-72.717	Fen	100	6.6	93.9	Excellent
314	624	Heritage	Ref	42.8930	-73.0094	Fen	100	5.6	79.7	Fair
315	625	Heritage	Ref	44.7905	-71.8222	Fen	100	6.7	95	Excellent
316	626	Heritage	Ref	44.7909	-71.8215	Fen	100	7.7	100	Excellent
317	627	Heritage	Ref	43.6946	-72.8574	Fen	100	6.6	93.4	Excellent
318	628	Heritage	Ref	44.3870	-73.1665	Fen	100	6.5	92.1	Excellent
319	629	Heritage	Ref	44.3847	-73.1674	Fen	100	5.7	81.6	Good
320	630	Heritage	Ref	43.2208	-72.7591	Fen	100	6.4	90.5	Excellent
321	631	Heritage	Ref	44.9891	-72.8958	Fen	100	7	98.7	Excellent
322	632	Heritage	Ref	44.9907	-72.8965	Fen	100	6.5	92.6	Excellent
323	633	Heritage	Ref	43.7656	-73.2792	Fen	100	5.7	81.8	Good
324	634	Heritage	Ref	43.7574	-73.2823	Fen	100	6.4	91.2	Excellent
325	635	Heritage	Ref	43.7570	-73.2837	Fen	100	5.9	84.1	Good
326	636	Heritage	Ref	43.7573	-73.2823	Fen	100	6.3	89	Good
327	637	Heritage	Ref	42.9366	-73.0225	Fen	100	6.3	89.9	Good
328	638	Heritage	Ref	43.0846	-73.0061	Fen	100	7	98.7	Excellent
329	640	Heritage	Ref	44.7933	-71.8578	Fen	100	6.4	90.8	Excellent
330	641	Heritage	Ref	44.7202	-71.7865	Fen	100	6.1	87.4	Good
331	644	Heritage	Ref	44.5621	-71.6948	Fen	100	7	98.7	Excellent
332	645	Heritage	Ref	43.8638	-73.0677	Fen	100	4.5	65.8	Fair
333	646	Heritage	Ref	43.4651	-72.7611	Fen	100	6.4	90.8	Excellent
334	647	Heritage	Ref	43.2221	-72.874	Fen	100	6	85.5	Good

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
335	648	Heritage	Ref	43.0124	-72.9246	Fen	100	6.2	87.9	Good
336	649	Heritage	Ref	43.0124	-72.9245	Fen	100	6.3	89.6	Good
337	650	Heritage	Ref	43.1087	-72.9529	Fen	100	7	98.7	Excellent
338	651	Heritage	Ref	43.0887	-73.0328	Fen	100	6.2	87.7	Good
339	652	Heritage	Ref	43.0887	-73.0327	Fen	100	5.4	77.2	Fair
340	653	Heritage	Ref	43.0887	-73.0327	Fen	100	5.7	81.8	Good
341	655	Heritage	Ref	43.4377	-73.2002	Fen	100	7.6	100	Excellent
342	656	Heritage	Ref	43.4387	-73.203	Fen	100	7.2	100	Excellent
343	657	Heritage	Ref	44.8089	-71.8447	Fen	100	6.2	88.2	Good
344	662	Heritage	Ref	44.2452	-72.1004	Fen	100	7	98.7	Excellent
345	663	Heritage	Ref	44.2452	-72.1004	Fen	100	7.4	100	Excellent
346	664	Heritage	Ref	44.4424	-72.9141	Fen	100	5	72.4	Fair
347	665	Heritage	Ref	44.2820	-72.2781	Fen	100	5.8	82.2	Good
348	666	Heritage	Ref	44.3649	-72.353	Fen	100	4	59.2	Poor
349	667	Heritage	Ref	44.6916	-71.6633	Fen	100	7.6	100	Excellent
350	668	Heritage	Ref	44.5564	-71.8342	Fen	100	7.5	100	Excellent
351	669	Heritage	Ref	44.5564	-71.8342	Fen	100	7.2	100	Excellent
352	670	Heritage	Ref	44.4309	-72.4644	Fen	100	7.3	100	Excellent
353	671	Heritage	Ref	44.4313	-72.4649	Fen	100	6.8	96.2	Excellent
354	672	Heritage	Ref	44.3924	-71.9372	Fen	100	7.4	100	Excellent
355	673	Heritage	Ref	44.5209	-71.7911	SpruceSwamp	100	7.5	100	Excellent
356	674	Heritage	Ref	44.5206	-71.7898	Fen	100	7.9	100	Excellent
357	675	Heritage	Ref	44.5313	-72.1785	Fen	100	6.1	87	Good
358	676	Heritage	Ref	44.5233	-72.1974	Fen	100	7.3	100	Excellent
359	677	Heritage	Ref	44.5216	-72.1959	Beaver_Other	100	6.6	93.4	Excellent
360	678	Heritage	Ref	44.8653	-71.9078	Fen	100	6.9	97	Excellent
361	679	Heritage	Ref	44.5796	-71.7424	Fen	100	7.5	100	Excellent

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
362	680	Heritage	Ref	44.9522	-72.8823	SpruceSwamp	100	7.3	100	Excellent
363	681	Heritage	Ref	44.9533	-72.8803	Fen	100	6.8	95.4	Excellent
364	682	Heritage	Ref	44.8143	-72.9951	Fen	100	4.9	70.5	Fair
365	683	Heritage	Ref	44.7801	-73.006	Fen	100	7.3	100	Excellent
366	684	Heritage	Ref	44.7793	-73.0068	Fen	100	7	98.7	Excellent
367	685	Heritage	Ref	44.1034	-73.0449	Fen	100	6.4	90.8	Excellent
368	687	Heritage	Ref	44.0404	-73.0542	Fen	100	5.1	74.2	Fair
369	688	Heritage	Ref	44.0404	-73.0542	Fen	100	5.9	84.2	Good
370	689	Heritage	Ref	44.7576	-72.6311	Fen	100	6.3	88.8	Good
371	690	Heritage	Ref	44.7581	-72.6301	Fen	100	6.6	93.1	Excellent
372	691	Heritage	Ref	44.5451	-73.2853	Fen	100	5.9	84.6	Good
373	692	Heritage	Ref	44.5451	-73.2853	Fen	100	7.2	100	Excellent
374	693	Heritage	Ref	44.6777	-71.706	Fen	100	7.1	99.9	Excellent
375	694	Heritage	Ref	44.6777	-71.706	Fen	100	6.5	91.7	Excellent
376	695	Heritage	Ref	43.1340	-72.9835	Fen	100	4	59.2	Poor
377	696	Heritage	Ref	43.0849	-73.0069	Fen	100	7.4	100	Excellent
378	697	Heritage	Ref	43.0861	-73.0083	Fen	100	7.7	100	Excellent
379	698	Heritage	Ref	43.0861	-73.0083	Fen	100	6.5	91.5	Excellent
380	699	Heritage	Ref	44.5029	-72.6206	Fen	100	7	98.7	Excellent
381	700	Heritage	Ref	44.5029	-72.6206	Fen	100	7.1	99.5	Excellent
382	701	Heritage	Ref	42.7804	-72.8787	Fen	100	7.9	100	Excellent
383	702	Heritage	Ref	42.7804	-72.8787	Fen	100	7.1	100	Excellent
384	703	Heritage	Ref	44.6379	-71.608	Fen	100	6.8	96.3	Excellent
385	704	Heritage	Ref	44.6379	-71.608	Fen	100	6.2	88.4	Good
386	705	Heritage	Ref	43.4061	-72.8879	Fen	100	4.7	68	Fair
387	706	Heritage	Ref	43.4046	-72.8879	Fen	100	4.8	69.1	Fair
388	707	Heritage	Ref	43.4046	-72.8879	Fen	100	5.2	74.8	Fair

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
389	708	Heritage	Ref	44.3135	-72.3079	Fen	100	4.9	70.5	Fair
390	710	Heritage	Ref	44.3135	-72.3079	Fen	100	7.4	100	Excellent
391	711	Heritage	Ref	44.6204	-71.6497	Fen	100	6.2	88.3	Good
392	712	Heritage	Ref	44.6204	-71.6497	Fen	100	6.1	86.6	Good
393	713	Heritage	Ref	44.5002	-72.6395	Fen	100	6.6	92.8	Excellent
394	714	Heritage	Ref	44.5002	-72.6395	Fen	100	6.8	95.4	Excellent
395	715	Heritage	Ref	44.0582	-73.2734	SpruceSwamp	100	5.6	79.6	Excellent
396	773	Heritage	Ref	44.0421	-73.3961	Floodplain	98	4	49.8	Excellent
397	775	Heritage	Ref	44.6096	-73.185	Floodplain	100	4.6	67	Excellent
398	813	Heritage	Ref	44.5811	-72.79	Beaver_Other	98.6	3.8	50.6	Good
399	815	Heritage	Ref	44.4870	-72.8373	Beaver_Other	100	3.5	53.2	Good
400	816	Heritage	Ref	44.6120	-72.7167	Beaver_Other	100	4.4	64.1	Excellent
401	828	Heritage	Ref	44.5684	-72.74	Fen	100	5.1	73.6	Fair
402	829	Heritage	Ref	43.4835	-72.6487	Fen	100	5.4	77.9	Fair
403	830	Heritage	Ref	43.4840	-72.6493	Fen	94.1	4.1	33	Poor
405	360	Heritage	Ref			Beaver_Other	100	4.8	70.1	Excellent
406	492	Heritage	Ref			SpruceSwamp	100	5	72.4	Good
407	434	Heritage	Ref	44.6743	-73.1431	Swamp_Seep	100	5.1	73.1	Excellent
408	262	Heritage	Ref			Swamp_Seep	100	5.3	75.7	Excellent
409	660	Heritage	Ref			Swamp_Seep	100	6.1	87.1	Excellent
410	614	Heritage	Ref			Fen	100	7.5	100	Excellent
411	654	Heritage	Ref			Fen	100	7.1	100	Excellent
412	305	Heritage	Ref			Swamp_Seep	97	4.3	49.2	Fair
413	454	Heritage	Ref			Swamp_Seep	100	4.8	69.2	Excellent
414	466	Heritage	Ref			Swamp_Seep	100	4.4	64.5	Good
415	464	Heritage	Ref			Swamp_Seep	100	4.7	68.9	Excellent
416	410	Heritage	Ref			Swamp_Seep	100	5	73	Excellent

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
417	481	Heritage	Ref			Fen	100	5.9	84.8	Good
418	658	Heritage	Ref			Fen	100	5.7	81.6	Good
419	661	Heritage	Ref			Fen	100	5.3	76.9	Fair
420	639	Heritage	Ref			Fen	100	6	85.5	Good
421	642	Heritage	Ref			Fen	100	7	98.7	Excellent
422	643	Heritage	Ref			Fen	100	6.5	92.1	Excellent
423	659	Heritage	Ref			Fen	100	5.6	80.3	Good
424	264	Heritage	Ref			Swamp_Seep	100	4.8	69.9	Excellent
425	275	Heritage	Ref			Swamp_Seep	100	4.5	66.2	Excellent
426	506	Heritage	Ref			SpruceSwamp	100	4.9	70.7	Good
427	472	Heritage	Ref			Beaver_Other	100	3.9	57.5	Good
428	451	Heritage	Ref			SpruceSwamp	100	5.3	75.8	Excellent
429	461	Heritage	Ref			SpruceSwamp	100	5.2	74.8	Good
430	502	Heritage	Ref			SpruceSwamp	100	4.9	71	Good
431	P1CONN	Heritage	Ref			Floodplain	94.6	4.4	38.4	Excellent
432	P15CONN	Heritage	Ref			Floodplain	96.7	3.8	40.7	Excellent
433	P16CONN	Heritage	Ref			Floodplain	96	3.8	37.1	Excellent
434	P8CONN	Heritage	Ref			Floodplain	78	3.3	0	Poor
435	P8WHAV	Heritage	Ref			Floodplain	91.8	3.8	17.8	Good
436	P13LAM	Heritage	Ref			Floodplain	95.5	4	37.9	Excellent
437	P1LAPL1	Heritage	Ref			Floodplain	95.6	4	38.3	Excellent
438	P1METT1	Heritage	Ref			Floodplain	93.8	3.7	26	Good
439	P1METT2	Heritage	Ref			Floodplain	69.7	3	0	Poor
440	P4MISS3	Heritage	Ref			Floodplain	100	4.9	71.3	Excellent
441	P34MISS	Heritage	Ref			Floodplain	100	4.7	68.9	Excellent
442	P3OTT	Heritage	Ref			Floodplain	94.8	4	35.1	Excellent
443	P1OTT	Heritage	Ref			Floodplain	95.2	4.3	40.7	Excellent

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
444	P15OTT	Heritage	Ref			Floodplain	97.7	4.5	54.6	Excellent
445	P11OTT	Heritage	Ref			Floodplain	97.4	4.1	48.6	Excellent
446	P4OTT	Heritage	Ref			Floodplain	97.1	4.2	48.2	Excellent
447	P5PASS	Heritage	Ref			Floodplain	96	4.9	52.7	Excellent
448	P1WHAV1	Heritage	Ref	43.5801	-73.3842	Floodplain	93.3	3.8	25.5	Good
449	P1WEST1	Heritage	Ref			Floodplain	100	4.1	61	Excellent
450	P1WEST2	Heritage	Ref			Floodplain	100	4.3	63.6	Excellent
451	P1WEST3	Heritage	Ref			Floodplain	92.4	3.3	14.4	Fair
452	P13White	Heritage	Ref			Floodplain	88.9	3.7	5.6	Poor
453	P11White1	Heritage	Ref			Floodplain	90	3.4	4.8	Poor
454	P11White2	Heritage	Ref			Floodplain	92.4	3.9	22.5	Good
455	P15White	Heritage	Ref	43.9241	-72.662	Floodplain	92.9	3.8	22.6	Good
456	P5White	Heritage	Ref			Floodplain	84.3	3.2	0	Poor
457	P1Win	Heritage	Ref			Floodplain	97.9	4.3	53.7	Excellent
458	P2Win	Heritage	Ref			Floodplain	91.3	3.6	12.2	Fair
460	P11Win	Heritage	Ref			Floodplain	96.7	3.8	41.3	Excellent
461	P9WIN	Heritage	Ref			Floodplain	93.4	3.7	24	Good
463	P13WIN	Heritage	Ref			Floodplain	93.7	3.5	23	Good
466	P7WIN2	Heritage	Ref			Floodplain	89.3	4	9.2	Poor
471	Carse Preserve Wetla	Heritage	Ref	44.3025	-73.1224	Swamp_Seep	100	5	72.4	Excellent
472	Carse Preserve Wetla	Heritage	Ref	44.3049	-73.1226	Swamp_Seep	98.7	4.6	61	Good
922	Hazens Notch Wetland	Wetlands Heritage	Ref	44.8244	-72.4894	Beaver_Other	91.5	3.2	9.9	Poor
923	Hazens Notch Wetland	Wetlands Heritage	Ref	44.8283	-72.4935	Swamp_Seep	98.4	4.5	58.2	Fair
925	Milton Town Forest S	Wetlands Heritage	Ref	44.6246	-73.0555	Swamp_Seep	100	4.9	71.2	Excellent
932	Basin Brook Spring	Wetlands Heritage	Ref	42.9601	-73.1636	Swamp_Seep	94.4	3.7	28.4	Poor
939	Lost Nation Softwood	Wetlands Heritage	Ref	44.9970	-72.7223	Swamp_Seep	98.9	4.7	62.8	Good
948	Page Brook Beaver Me	Wetlands Heritage	Ref	44.6191	-72.1994	Beaver_Other	100	4.5	66.2	Excellent

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
950	Page Brook Cedar Swa	Wetlands Heritage	Ref	44.6210	-72.1992	Swamp_Seep	100	4.7	68.9	Excellent
956	Lake Shaftsbury Seep	Wetlands Heritage	Ref	43.0211	-73.1855	Swamp_Seep	95.8	4.5	46.2	Fair
957	Lake Shaftsbury Beav	Wetlands Heritage	Ref	43.0202	-73.1858	Beaver_Other	100	3.9	58.2	Good
962	Missisquoi Delta Wil	Wetlands Heritage	Ref	43.5767	-73.389	Beaver_Other	84.1	5.3	26.5	Poor
963	Little Elmore Beaver	Wetlands Heritage	Ref	44.4946	-72.5298	Beaver_Other	100	4.6	66.7	Excellent
964	Little Elmore Spruce	Wetlands Heritage	Ref			SpruceSwamp	98.6	5	65.9	Fair
965	Belvidere Scirpus Me	Wetlands Heritage	Ref	44.7962		Beaver_Other	100	4.4	63.8	Excellent
967	Belvidere Sedge Mead	Wetlands Heritage	Ref	44.7924	-72.6202	Beaver_Other	100	4.6	67.3	Excellent
973	Lake Carmi RMNWCS	Wetlands Heritage	Ref	44.9551	-72.8773	Swamp_Seep	96.9	4.8	55.3	Fair
974	Lake Carmi Bog	Wetlands Heritage	Ref	44.9497	-72.8857	SpruceSwamp	100	6.3	89.9	Excellent
976	FLPD01 (Flagg Pond S	Wetlands Heritage	Ref	44.5646	-72.2144	Beaver_Other	100	5	72.9	Excellent
977	Flagg Pond Fen	Wetlands Heritage	Ref	44.5648	-72.2136	Fen	100	5.6	80.7	Good
978	Flagg Pond Woodland	Wetlands Heritage	Ref	44.5648	-72.2131	SpruceSwamp	100	5.7	81.1	Excellent
979	Dorset Marsh Seepage	Wetlands Heritage	Ref	43.2472	-73.1024	Swamp_Seep	97.1	5	58.1	Fair
987	Belvedere Long Trail	Wetlands Heritage	Ref	44.7707	-72.5825	Swamp_Seep	97.4	4.4	52.7	Fair
1112	Huff Pond Drowned Sw	Wetlands Heritage	Ref	43.7910	-73.1757	Beaver_Other	96.1	4.2	42.9	Fair
1117	EACR01 Revisit - Ald	Wetlands Heritage	Ref	43.7440	-73.2964	Beaver_Other	98	4.5	57	Good
1118	EACR01 Sedge Meadow	Wetlands Heritage	Ref	43.7435	-73.2988	Beaver_Other	94.1	5.1	46.5	Fair
1123	LANI01/ Lake Nineveh	Wetlands Heritage	Ref	43.4796	-72.7581	Beaver_Other	97.8	4.2	51.7	Good
1128	Coaticook Clearing (	Wetlands Heritage	Ref	44.9574	-71.8964	Beaver_Other	100	4.5	65.1	Excellent
1131	CCC Seepage Forest	Wetlands Heritage	Ref	43.5600	-72.7897	Swamp_Seep	95.2	4.8	46.8	Fair
1135	Hartland Hill Road S	Wetlands Heritage	Ref	43.5987	-72.4821	Swamp_Seep	100	3.9	57.4	Fair
1138	North Clyde Lakeside	Wetlands Heritage	Ref	44.8257	-71.9582	Fen	100	5.7	81.1	Good
1139	Skitchewaug Basin Sw	Wetlands Heritage	Ref	43.2979	-72.4185	Swamp_Seep	100	4.5	65.8	Excellent
1140	Skitchewaug Black Gu	Wetlands Heritage	Ref	43.2950	-72.4205	Swamp_Seep	100	4.7	68.6	Excellent
1143	South Bay Black Ash/	Wetlands Heritage	Ref	44.9137	-72.2378	Swamp_Seep	89.1	4.3	12.5	Poor
1148	Cornwall Swamp Flood	Wetlands Heritage	Ref	43.9143	-73.1758	Floodplain	97	4.6	52.3	Excellent

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
1151	South Bay Sweetgale	Wetlands Heritage	Ref	44.9137	-72.2378	Beaver_Other	97.6	4.8	59	Good
1161	Shaw Marsh Meadow	Wetlands Heritage	Ref	43.6890	-73.3598	Fen	96	5	53.6	Poor
1162	Norton Pond Poor Fen	Wetlands Heritage	Ref	44.9312	-71.8817	Fen	100	5.4	78.2	Fair
1165	Hurricane Brook Bore	Wetlands Heritage	Ref	44.9356	-71.8847	Swamp_Seep	100	4.6	67.6	Excellent
1172	Pherrins Saddle	Wetlands Heritage	Ref	44.9107	-71.8795	Beaver_Other	100	5	72.8	Excellent
1173	Pherrins Bog	Wetlands Heritage	Ref	44.8653	-71.9077	Fen	100	7.6	100	Excellent
1178	Pico Pond Seepage Sw	Wetlands Heritage	Ref	43.6440	-72.8101	Swamp_Seep	99	4.8	64.6	Good
1182	Hands Cove Floodplai	Wetlands Heritage	Ref	43.8602	-73.3639	Floodplain	96.3	4.5	48.4	Excellent
1190	North Clyde Cedar Sw	Wetlands Heritage	Ref	44.8245	-71.9644	Swamp_Seep	100	5.3	75.7	Excellent
1200	West Rutland Cedar S	Wetlands Heritage	Ref	43.6258	-73.0645	Swamp_Seep	96.6	4.3	47.3	Fair
1551	Deane Streamside	Wetlands Heritage	Ref	44.3064	-72.8785	Swamp_Seep	100	4.4	65.1	Excellent
1569	Bruce Pond Bog	Wetlands Heritage	Ref	44.6390	-72.1899	Fen	100	5.5	78.3	Fair
1575	Kettle Pond Spruce D	Wetlands Heritage	Ref	44.2842	-72.3164	SpruceSwamp	100	5.5	79.4	Excellent
1586	Berlin Pond Cedar Sw	Wetlands Heritage	Ref	44.1966	-72.5841	Swamp_Seep	96.2	4.4	46.5	Fair
1587	Telephone Gap Beaver	Wetlands Heritage	Ref	43.7676	-72.8928	Beaver_Other	100	4.1	60.1	Excellent
1588	Telephone Gap Seepag	Wetlands Heritage	Ref	43.7677	-72.8957	Swamp_Seep	100	4.5	66.4	Excellent
1610	Steam Mill Softwood	Wetlands Heritage	Ref	44.4939	-72.187	SpruceSwamp	100	5.2	75.4	Excellent
1615	Stiles Pond Beaver M	Wetlands Heritage	Ref	44.4048	-71.9293	Beaver_Other	98.4	4.3	55.3	Good
1820	Snake Mountain Bog	Wetlands Heritage	Ref	44.0579	-73.2731	Fen	97.3	5.9	72.2	Fair
1842	WOWE02 Spruce Swamp	Wetlands Heritage	Ref	42.8981	-73.0451	SpruceSwamp	100	5	73	Good
1848	DRBR01 Revisit 2021	Wetlands Heritage	Ref	44.0066	-73.0584	Swamp_Seep	99	4.4	59.6	Fair
20	244	Heritage	Ambig.	42.8266	-72.5883	Swamp_Seep	95.7	4.2	42	Fair
35	260	Heritage	Ambig.	42.8850	-73.2225	Beaver_Other	94.3	4.3	36.5	Fair
36	261	Heritage	Ambig.	42.7430	-72.5972	Beaver_Other	94	3.1	21.6	Poor
48	276	Heritage	Ambig.	44.5530	-73.2503	Swamp_Seep	98.2	3.7	47.1	Fair
58	287	Heritage	Ambig.	43.9141	-73.108	Swamp_Seep	96.9	4.3	49.1	Fair
59	288	Heritage	Ambig.	43.8250	-72.1939	Floodplain	98.6	4.3	56	Excellent

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
62	291	Heritage	Ambig.	44.1897	-73.2252	Swamp_Seep	98.3	4.5	58.1	Fair
64	293	Heritage	Ambig.	44.1882	-73.2173	Floodplain	94.1	4.1	32.4	Good
73	302	Heritage	Ambig.	43.4018	-72.5135	Swamp_Seep	95.9	4.6	47.4	Fair
81	311	Heritage	Ambig.	44.2180	-73.2164	Floodplain	98.7	4.3	57.8	Excellent
777	465	Heritage	Ambig.			SpruceSwamp	100	5.7	82	Excellent
891	TMBR02	Wetlands Heritage	Ambig.	43.9690	-73.1557	Floodplain	90.4	4.1	14.7	Fair
900	Pomainville Swamp (P	Wetlands Heritage	Ambig.	43.7360	-73.0497	Swamp_Seep	92.7	4	24.3	Poor
912	Goodrich E Ash Swamp	Wetlands Heritage	Ambig.	43.9455	-73.1612	Swamp_Seep	95.4	3.3	28.3	Poor
914	Goose Pond Wetland	Wetlands Heritage	Ambig.	44.6505	-72.9473	Beaver_Other	93.5	4.1	30.1	Fair
917	Lamoille River Trib	Wetlands Heritage	Ambig.	44.6348	-73.1362	Beaver_Other	91.7	3.1	10.7	Poor
920	McGowan Brook Wetlan	Wetlands Heritage	Ambig.	44.9024	-72.9398	Beaver_Other	92.1	3.4	13.8	Poor
938	Lost Nation Softwood	Wetlands Heritage	Ambig.	44.9954	-72.7266	SpruceSwamp	100	5.2	74.7	Good
949	Page Brook Fen (PAB	Wetlands Heritage	Ambig.	44.6217	-72.1992	Fen	100	4.6	66.5	Fair
966	Belvidere Beaver Wet	Wetlands Heritage	Ambig.	44.7938	-72.6223	Beaver_Other	89.3	3.8	6	Poor
968	Bullhead Pond Poor F	Wetlands Heritage	Ambig.	43.2128	-73.0162	Fen	96.8	5.2	60.5	Fair
969	Little Mad Tom Brook	Wetlands Heritage	Ambig.	43.2164	-73.0111	Beaver_Other	94	3.6	25.7	Poor
981	Fairfield Swamp N	Wetlands Heritage	Ambig.	44.8046	-72.9947	Fen	100	5	71.7	Fair
988	Belvedere Long Trail	Wetlands Heritage	Ambig.	44.7730	-72.5823	Swamp_Seep	100	4.2	61.3	Good
1093	Tyson Road Rich Fen	Wetlands Heritage	Ambig.	43.4852	-72.638	Fen	100	5.1	73.2	Fair
1095	REPO01 revisit	Wetlands Heritage	Ambig.	43.4842	-72.6479	Beaver_Other	100	4.2	62.3	Excellent
1103	Queechee Gorge Seepa	Wetlands Heritage	Ambig.	43.6342	-72.4065	Swamp_Seep	91.6	3.6	14.5	Poor
1106	Old Plymouth Spruce	Wetlands Heritage	Ambig.	43.5291	-72.7913	SpruceSwamp	100	4.5	65.3	Fair
1107	Old Plymouth Beaver	Wetlands Heritage	Ambig.	43.5305	-72.791	Beaver_Other	100	4.2	61.7	Excellent
1110	Benson Direct Floodp	Wetlands Heritage	Ambig.	43.7195	-73.3657	Floodplain	91.2	3.8	14.7	Fair
1124	Ferrisburg/Porter Ba	Wetlands Heritage	Ambig.	44.2213	-73.3143	Floodplain	90.8	4.9	28.1	Good
1132	CCC Road Chelone Mea	Wetlands Heritage	Ambig.	43.5602	-72.789	Swamp_Seep	97.8	4.3	53.3	Fair
1136	Runaway Pond Wetland	Wetlands Heritage	Ambig.	44.6325	-72.2125	Beaver_Other	95.9	4	39.9	Fair

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
1163	East Creek Lakeside	Wetlands Heritage	Ambig.	43.8058	-73.3345	Floodplain	94.7	4.3	38.6	Excellent
1166	Ward Marsh Wild Rice	Wetlands Heritage	Ambig.	43.5767	-73.389	Beaver_Other	84.1	5.3	26.5	Poor
1168	Coventry Village Sed	Wetlands Heritage	Ambig.	44.8670	-72.26	Beaver_Other	93.6	4	29.1	Poor
1170	Bean Pond Cedar Swam	Wetlands Heritage	Ambig.	44.6988	-72.0899	Swamp_Seep	100	4.7	67.8	Excellent
1171	Bean Pond Floating S	Wetlands Heritage	Ambig.	44.6965	-72.0847	Beaver_Other	100	4.9	71.6	Excellent
1183	Lake Nineveh Fen	Wetlands Heritage	Ambig.	43.4785	-72.7571	Fen	100	4.7	68	Fair
1191	Killington Flats Mea	Wetlands Heritage	Ambig.	43.6679	-72.7769	Beaver_Other	100	4.5	65.3	Excellent
1201	West Rutland Alder S	Wetlands Heritage	Ambig.	43.6309	-73.0635	Beaver_Other	96.6	3.9	42.6	Fair
1554	Round Beaver Wetland	Wetlands Heritage	Ambig.	44.0192	-73.068	Beaver_Other	100	4.3	63.6	Excellent
1557	Hubbard Park Hemlock	Wetlands Heritage	Ambig.	44.2720	-72.5803	Swamp_Seep	95.6	4.5	45	Fair
1568	Wrightsville Spillwa	Wetlands Heritage	Ambig.	44.3097	-72.5737	Fen	98.6	3.9	51.3	Poor
1570	Bruce Pond Cedar Swa	Wetlands Heritage	Ambig.	44.6382	-72.1895	Swamp_Seep	92.1	4.7	30.6	Poor
1571	Grenville Floodplain	Wetlands Heritage	Ambig.	43.9715	-72.8403	Floodplain	91.5	4.2	22.2	Good
1572	Grenville Alluvial S	Wetlands Heritage	Ambig.	43.9705	-72.8418	Beaver_Other	97.5	3.5	40.3	Fair
1574	Kettle Pond Alder Do	Wetlands Heritage	Ambig.	44.2813	-72.3158	Beaver_Other	100	4.2	62.1	Excellent
1576	Kettle Pond Beaver D	Wetlands Heritage	Ambig.	44.2810	-72.3207	Beaver_Other	100	4.3	63.6	Excellent
1612	Randolph Floodplain	Wetlands Heritage	Ambig.	43.9235	-72.6616	Floodplain	94.7	3.5	27	Good
1618	Stiles Pond Poor Fen	Wetlands Heritage	Ambig.	44.4017	-71.9339	Fen	100	6	85.5	Good
1622	Median Fen	Wetlands Heritage	Ambig.	44.0767	-72.6113	Fen	98	5.2	65.1	Fair
1624	Rest Stop Swamp	Wetlands Heritage	Ambig.	43.9839	-72.6264	Swamp_Seep	90.2	4	13.2	Poor
1629	Rock River Reference	Wetlands Heritage	Ambig.	44.9883	-73.0819	Swamp_Seep	90.1	3.6	6.8	Poor
1776	Torrey Meadow Black	Wetlands Heritage	Ambig.	43.0545	-72.9563	SpruceSwamp	100	5	73	Good
1818	Snake Mountain Lower	Wetlands Heritage	Ambig.	44.0488	-73.2664	Beaver_Other	92.8	3.8	21.8	Poor
1829	South End New Fen	Wetlands Heritage	Ambig.	43.3126	-72.9912	Fen	96.3	4.5	48.9	Poor
490	Danby Pond	Wetlands Transect	Ambig.			Beaver_Other	96.5	4	42.8	Fair
491	Flagg Pond	Wetlands Transect	Ambig.			Beaver_Other	100	5.2	74.6	Excellent
492	Hogback Meadow Brook	Wetlands Transect	Ambig.			Beaver_Other	95.7	3.6	33.1	Fair

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
502	CRLA01	Wetlands Transect	Ambig.			Beaver_Other	97.9	4.8	59.3	Good
504	GRAV01	Wetlands Transect	Ambig.			Beaver_Other	100	4.9	71.6	Excellent
505	HOPO01	Wetlands Transect	Ambig.			Beaver_Other	100	5	71.8	Excellent
506	JOPO01	Wetlands Transect	Ambig.	44.4230	-72.2219	Beaver_Other	94.5	4.9	44.4	Fair
512	PEPO02	Wetlands Transect	Ambig.			Beaver_Other	100	5.3	76.5	Excellent
515	BERE01	Wetlands Transect	Ambig.	44.2065	-72.5864	Beaver_Other	96.8	4	43.7	Fair
518	COPO01	Wetlands Transect	Ambig.	44.5140	-72.2134	Beaver_Other	98.9	5	66.8	Excellent
522	LYBR01	Wetlands Transect	Ambig.	43.0857	-73.0245	Fen	100	5.6	80.1	Good
525	NOSH01	Wetlands Transect	Ambig.			Beaver_Other	95.5	4.3	41.3	Fair
528	SCFE01	Wetlands Transect	Ambig.			Fen	100	5.3	76.3	Fair
529	SEWH01	Wetlands Transect	Ambig.			Swamp_Seep	96.3	4.2	44.6	Fair
532	WOWE01	Wetlands Transect	Ambig.			Beaver_Other	100	4.2	61.7	Excellent
534	ALBR01	Wetlands Transect	Ambig.	44.0258	-72.8296	Beaver_Other	97.9	4.3	53	Good
565	BEBR01	Wetlands Transect	Ambig.	44.7203	-71.9599	Swamp_Seep	97.6	4.6	55.3	Fair
566	BESW01	Wetlands Transect	Ambig.			Beaver_Other	100	4.4	64.2	Excellent
567	BETF01	Wetlands Transect	Ambig.			Beaver_Other	98.6	4.3	56.3	Good
568	BMBR01	Wetlands Transect	Ambig.			Beaver_Other	95.3	4	37.3	Fair
569	BOBR01	Wetlands Transect	Ambig.			Beaver_Other	100	5.2	74.4	Excellent
570	COBR01	Wetlands Transect	Ambig.			Beaver_Other	98.6	3.7	48.8	Fair
571	COSW01	Wetlands Transect	Ambig.	43.9204	-73.1929	Swamp_Seep	98.5	4.5	58.8	Fair
572	DRBR01 (2010)	Wetlands Transect	Ambig.	44.0063	-73.0586	Swamp_Seep	98.9	4.6	62.7	Good
575	HUBR01	Wetlands Transect	Ambig.	44.9578	-71.8962	Beaver_Other	100	4.2	61.3	Excellent
576	KESW01	Wetlands Transect	Ambig.			Beaver_Other	94.4	4.3	37.1	Fair
577	LANI01	Wetlands Transect	Ambig.	43.4793	-72.7581	Beaver_Other	100	4.2	61.7	Excellent
578	LATR01	Wetlands Transect	Ambig.	44.3046	-73.1242	Beaver_Other	93.8	4.6	37.7	Fair
579	LOCR01	Wetlands Transect	Ambig.			Beaver_Other	100	4.8	69.2	Excellent
580	LOPO02	Wetlands Transect	Ambig.			Beaver_Other	98.6	4.8	63.2	Excellent

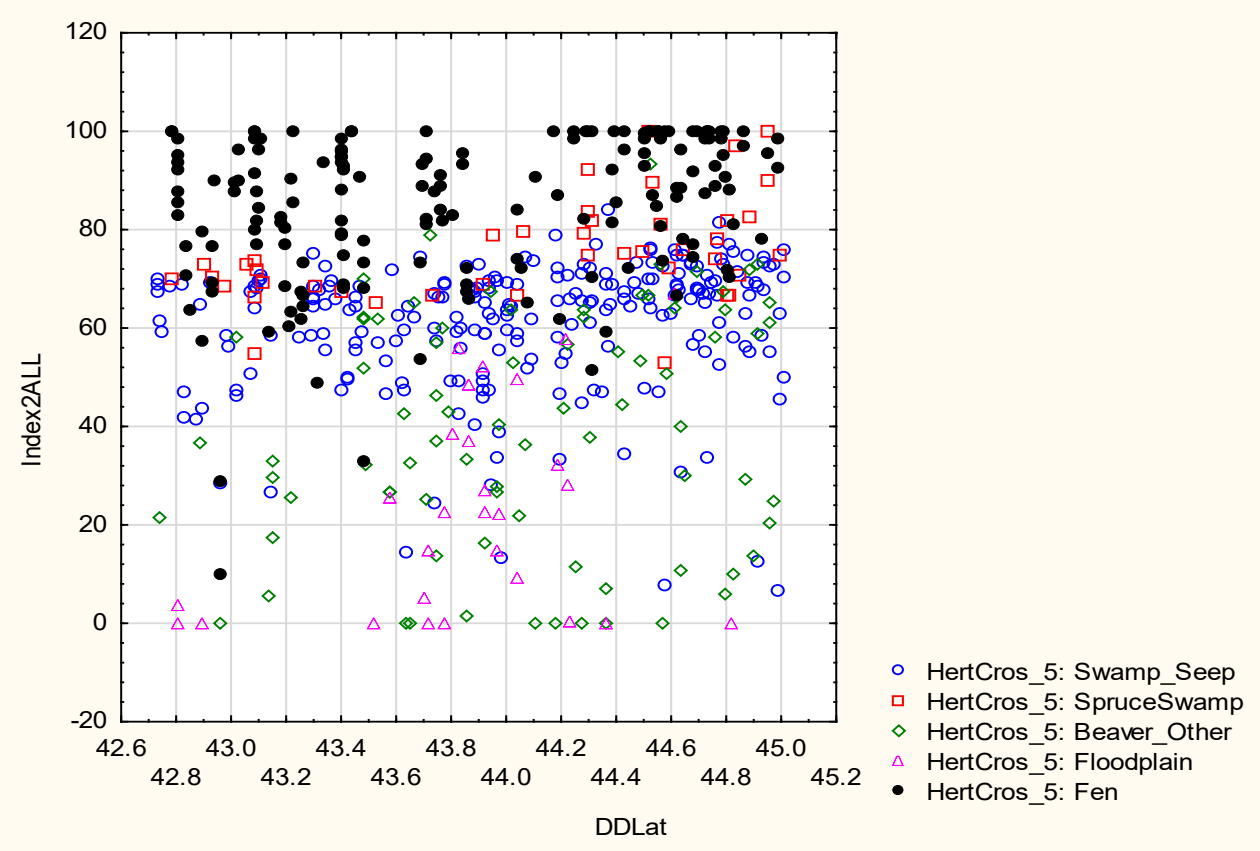
Appendix E.

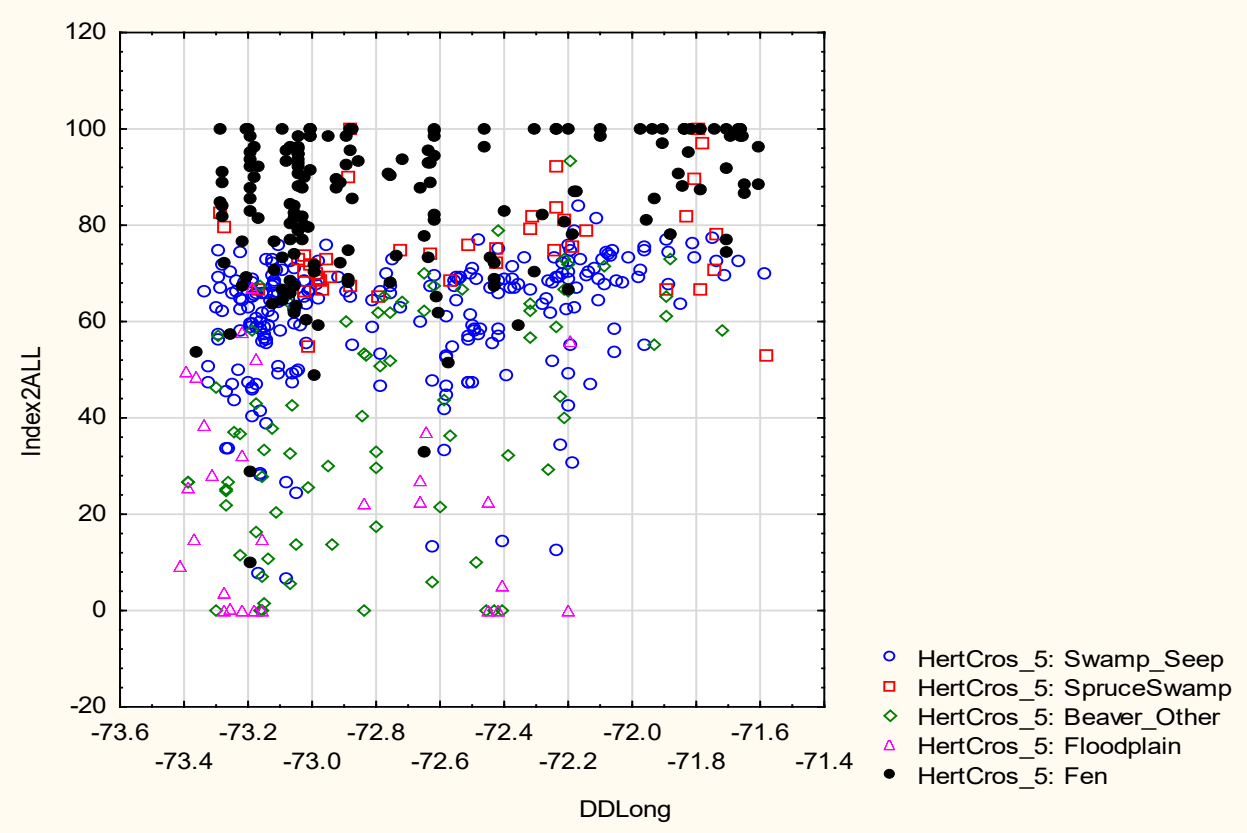
Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
581	PODU01	Wetlands Transect	Ambig.			Beaver_Other	97.5	3.9	46.5	Fair
582	REPO01	Wetlands Transect	Ambig.	43.4843	-72.6484	Beaver_Other	100	4.8	70.1	Excellent
583	ROBR01	Wetlands Transect	Ambig.			Beaver_Other	100	4.7	69	Excellent
585	SBWR01	Wetlands Transect	Ambig.	44.0692	-72.569	Beaver_Other	94.3	4.3	36.4	Fair
586	SOBR01	Wetlands Transect	Ambig.	44.2266	-72.3197	Beaver_Other	98.6	4.3	56.8	Good
587	STTF01	Wetlands Transect	Ambig.			Swamp_Seep	98.7	4.1	55.1	Fair
604	MUCR01	Wetlands Transect	Ambig.	44.9718	-73.2683	Beaver_Other	91.6	4.4	24.8	Poor
290	592	Heritage	Strs	43.7016	-72.4085	Floodplain	85.5	3.7	5	Poor
291	593	Heritage	Strs	43.7197	-72.421	Floodplain	77.1	3.3	0	Poor
292	594	Heritage	Strs	43.7773	-72.4476	Floodplain	70.4	2.1	0	Poor
462	P20Win	Heritage	Strs			Floodplain	97.1	4.2	47.5	Excellent
464	P6WIN	Heritage	Strs			Floodplain	91.7	4.2	22.4	Good
465	P7WIN1	Heritage	Strs			Floodplain	82.7	3.9	7.4	Poor
890	TMBR01	Wetlands Heritage	Strs	43.9685	-73.1533	Beaver_Other	94.5	3.6	27.8	Poor
895	MUFL01	Wetlands Heritage	Strs	44.5671	-73.1586	Beaver_Other	78.8	2	0	Poor
902	Pomainville Restorat	Wetlands Heritage	Strs	43.7445	-73.0505	Beaver_Other	92.3	3.2	13.8	Poor
903	Lomas Green Ash Swam	Wetlands Heritage	Strs	44.3595	-73.1541	Floodplain	77.1	2.4	0	Poor
904	Lomas Disturbed Mead	Wetlands Heritage	Strs	44.3605	-73.1544	Beaver_Other	90.9	2.8	6.9	Poor
905	Lomas Scirpus Marsh	Wetlands Heritage	Strs	44.3597	-73.1546	Beaver_Other	87.9	2.8	0	Poor
911	Goodrich Restoration	Wetlands Heritage	Strs	43.9475	-73.1624	Beaver_Other	100	4.6	67.3	Excellent
916	Roche Restoration Si	Wetlands Heritage	Strs	43.6539	-73.0683	Beaver_Other	96.3	3	32.5	Fair
928	Lamoreau Meadow	Wetlands Heritage	Strs	43.8575	-73.1493	Beaver_Other	95.2	3.8	33.3	Fair
929	Lamoreau Mixed Herba	Wetlands Heritage	Strs	43.8595	-73.1486	Beaver_Other	88.5	3.4	1.5	Poor
930	Whipstock Hill Rich	Wetlands Heritage	Strs	42.8918	-73.2534	Fen	98.3	4.5	57.3	Poor
934	Basin Brook Meadow	Wetlands Heritage	Strs	42.9617	-73.1638	Beaver_Other	87.5	2.8	0	Poor
942	Swanton Village Mead	Wetlands Heritage	Strs			Beaver_Other	86.7	2.8	0	Poor
951	Bradford Putnam Wetl	Wetlands Heritage	Strs	42.8738	-73.1626	Swamp_Seep	95.3	4.4	41.6	Fair

Appendix E.

Site ID	Plot Name	Survey Type	Dist. Cat.	DDLat	DDLong	HertCros_5	RelImp Native	toler. toler.	Index2 ALL	Narrative Condition
958	Hubbardton Meadow	Wetlands Heritage	Strs	43.6506	-73.3017	Beaver_Other	83.1	2.7	0	Poor
970	Youngman Brook Wetla	Wetlands Heritage	Strs	44.9573	-73.1095	Beaver_Other	93.4	3.4	20.2	Poor
971	Hildene Backwater We	Wetlands Heritage	Strs	43.1396	-73.0712	Beaver_Other	83.7	3.7	5.6	Poor
1003	Lemon Fair Restorati	Wetlands Heritage	Strs	43.9663	-73.2632	Beaver_Other	95	3.3	26.6	Poor
1004	Lemon Fair Green Ash	Wetlands Heritage	Strs	43.9682	-73.2688	Swamp_Seep	94.1	4.2	33.9	Poor
1102	Queechee Gorge Beave	Wetlands Heritage	Strs	43.6324	-72.4083	Beaver_Other	87.5	3.2	0	Poor
1109	Chimney Point Floodp	Wetlands Heritage	Strs	44.0379	-73.4106	Floodplain	82.8	4	9.2	Poor
1120	Paradise Park Sedge	Wetlands Heritage	Strs	43.4914	-72.3901	Beaver_Other	95.4	3.6	32.2	Fair
1137	Cornwall Meadow	Wetlands Heritage	Strs	43.9187	-73.176	Beaver_Other	91.8	3.7	16.4	Poor
1147	Barton Floodplain Fo	Wetlands Heritage	Strs	44.8186	-72.1996	Floodplain	85.5	2.9	0	Poor
1149	Binding Site Wetland	Wetlands Heritage	Strs	43.7431	-73.2449	Beaver_Other	94.9	4.2	37.2	Fair
1150	Breese Pond Outlet	Wetlands Heritage	Strs	43.7077	-73.2715	Beaver_Other	94.6	3.3	25.2	Poor
1152	Poultney Floodplain	Wetlands Heritage	Strs	43.5209	-73.1823	Floodplain	76.7	2.6	0	Poor
1564	East Montpelier Alde	Wetlands Heritage	Strs	44.2737	-72.4543	Beaver_Other	68.2	2.5	0	Poor
1583	Irish Hill Meadow	Wetlands Heritage	Strs	44.1965	-72.6033	Fen	100	4.2	61.8	Fair
1585	Berlin Pond Ash Swam	Wetlands Heritage	Strs	44.1954	-72.5877	Swamp_Seep	95.8	3.5	33.5	Poor
1611	Hands Mill Alluvial	Wetlands Heritage	Strs	44.1054	-72.4295	Beaver_Other	89.4	2.8	0	Poor
1850	Hinesdale Restoratio	Wetlands Heritage	Strs	44.2504	-73.2272	Beaver_Other	91.8	3.3	11.5	Poor
500	The Creek	Wetlands Transect	Strs			Beaver_Other	100	4	59.2	Good
574	EASL01	Wetlands Transect	Strs	44.2301	-73.2537	Floodplain	76.8	3.3	0.4	Poor
599	MARI01	Wetlands Transect	Strs	44.1778	-72.8354	Beaver_Other	66	3	0	Poor
1212	MIPO03	Wetlands Transect	Strs			Beaver_Other	94	4.2	33.9	Fair

Appendix F. Index relationship to site characteristics.





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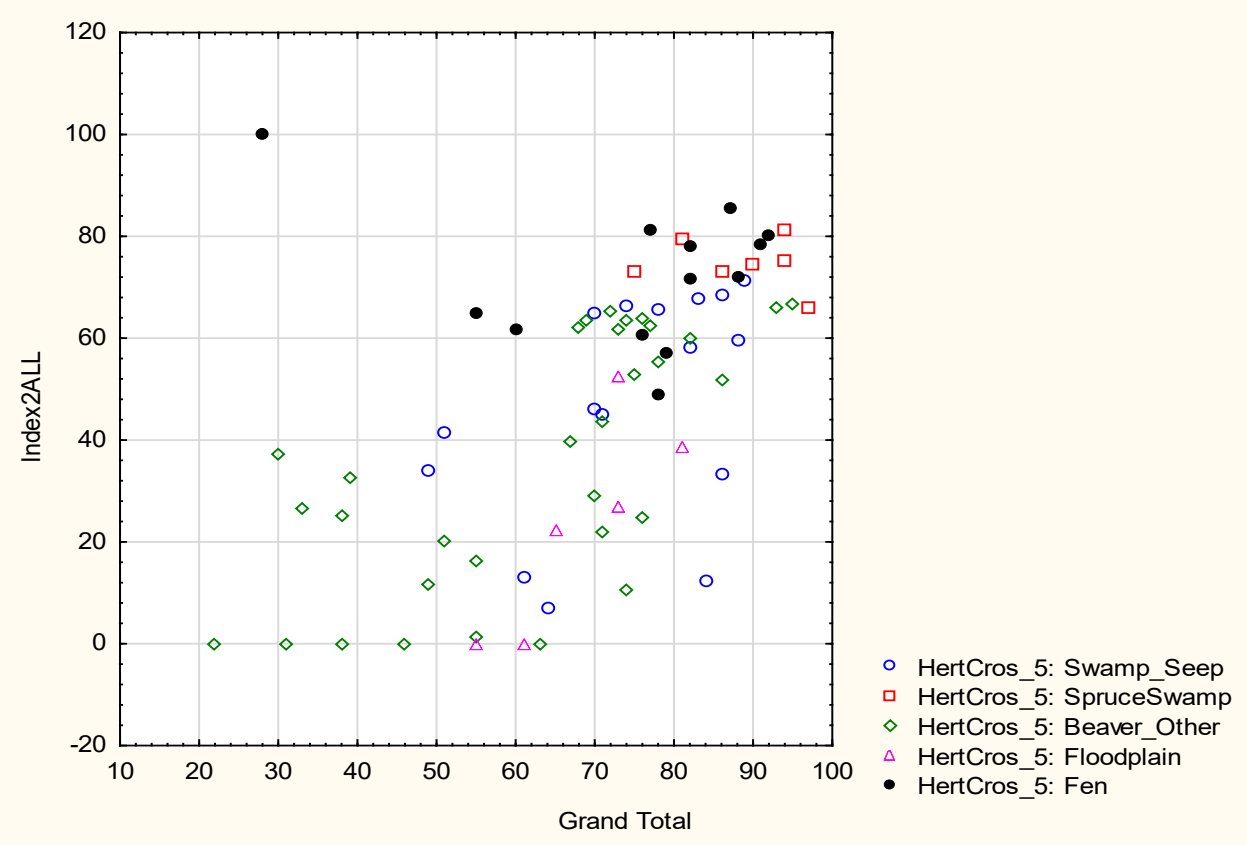

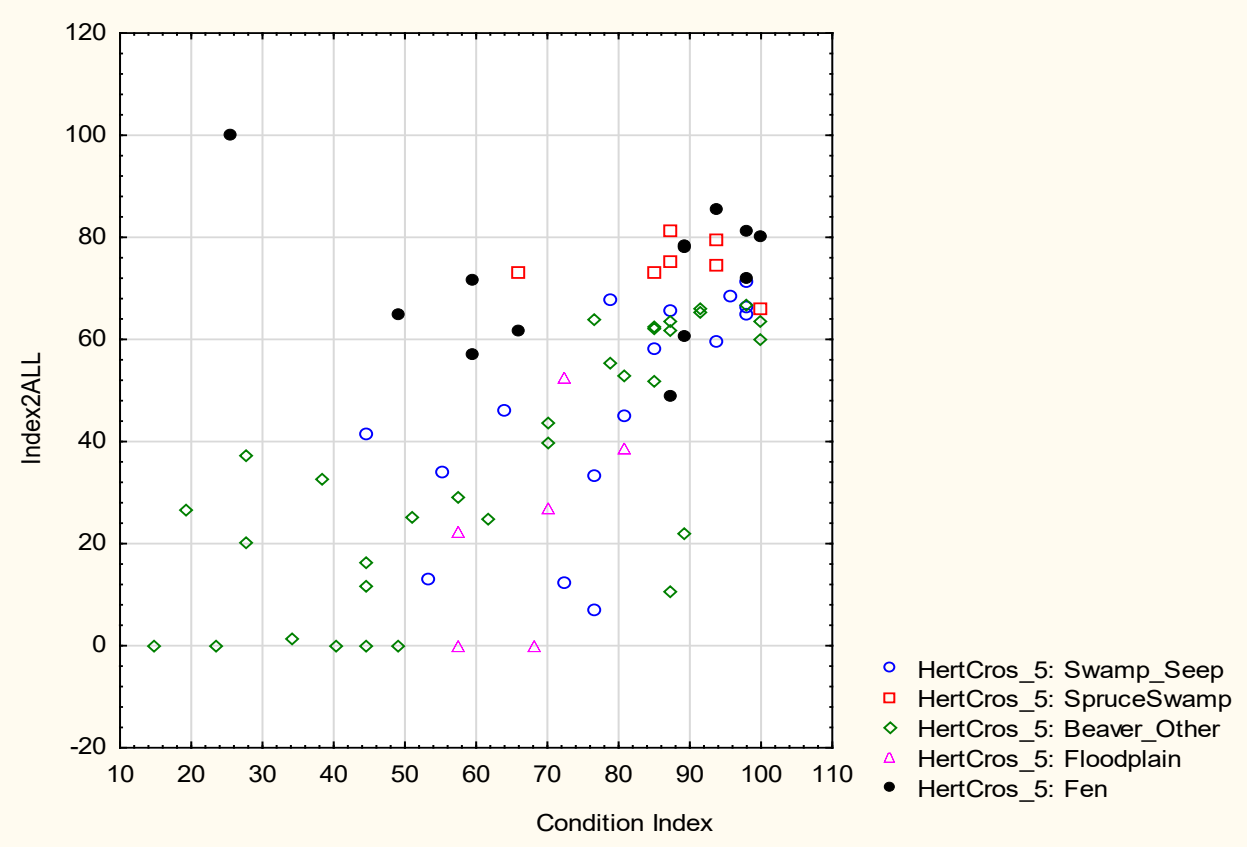

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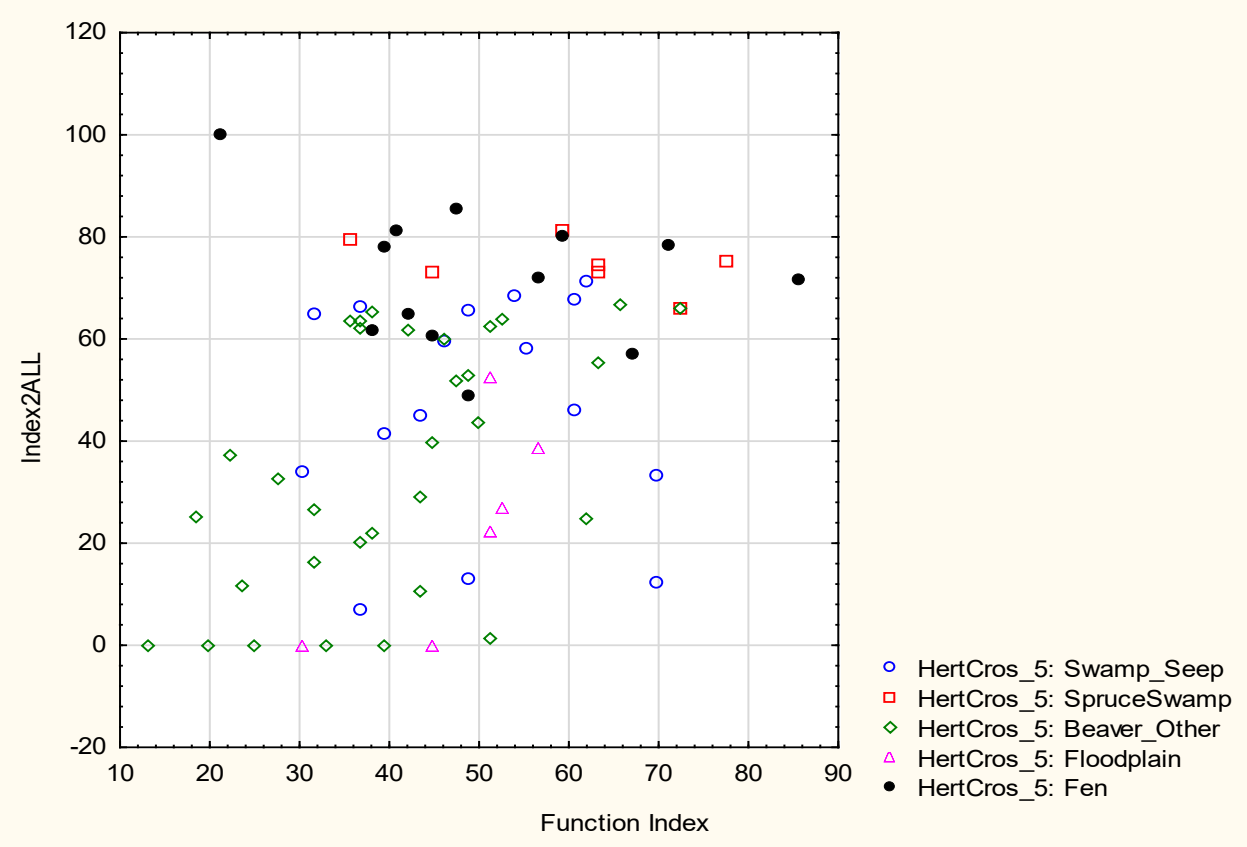

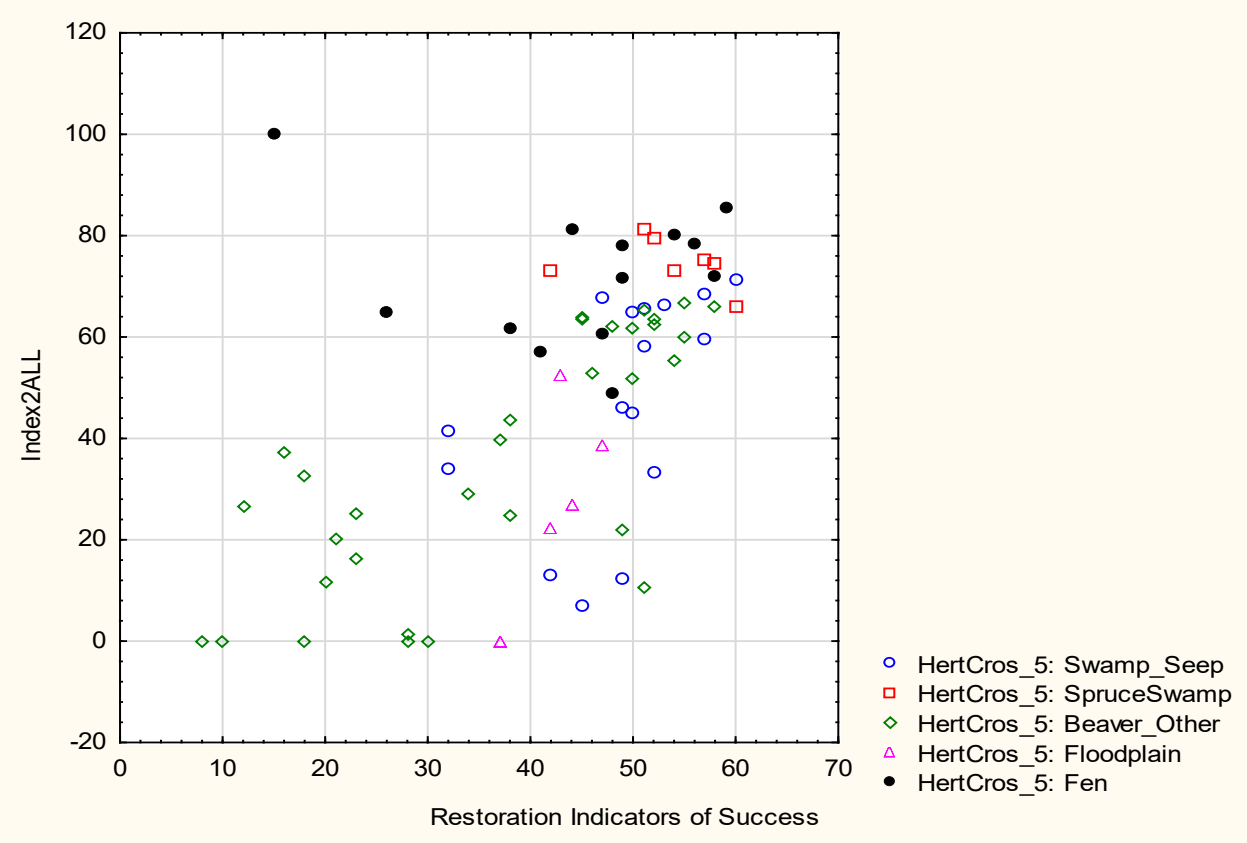

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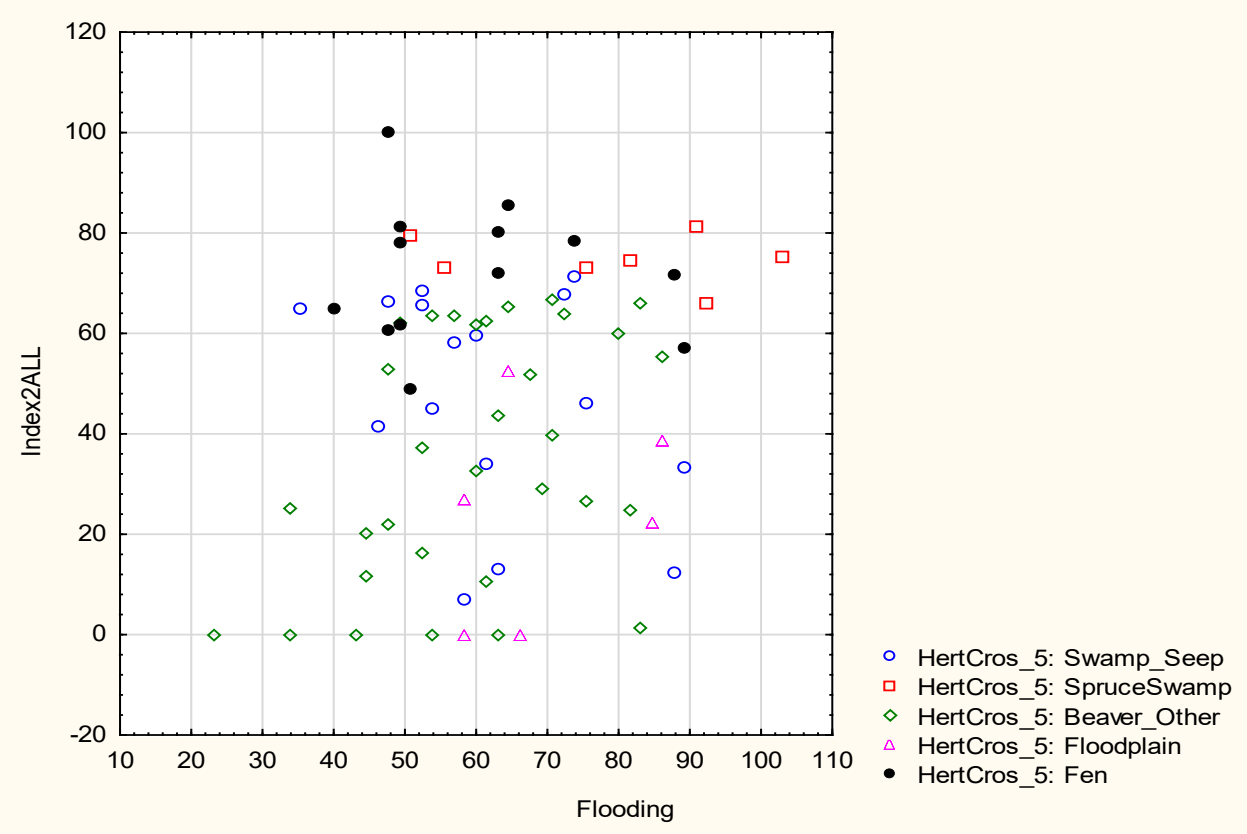

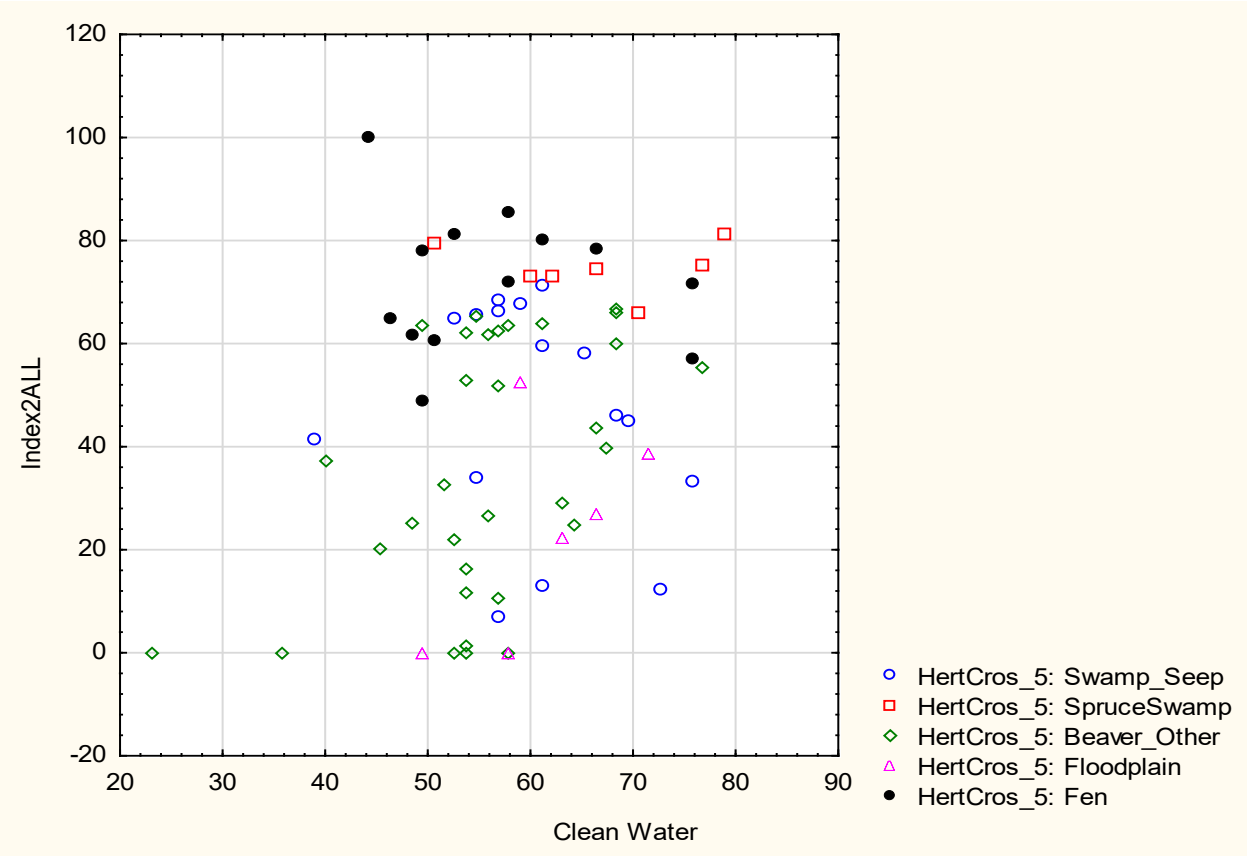

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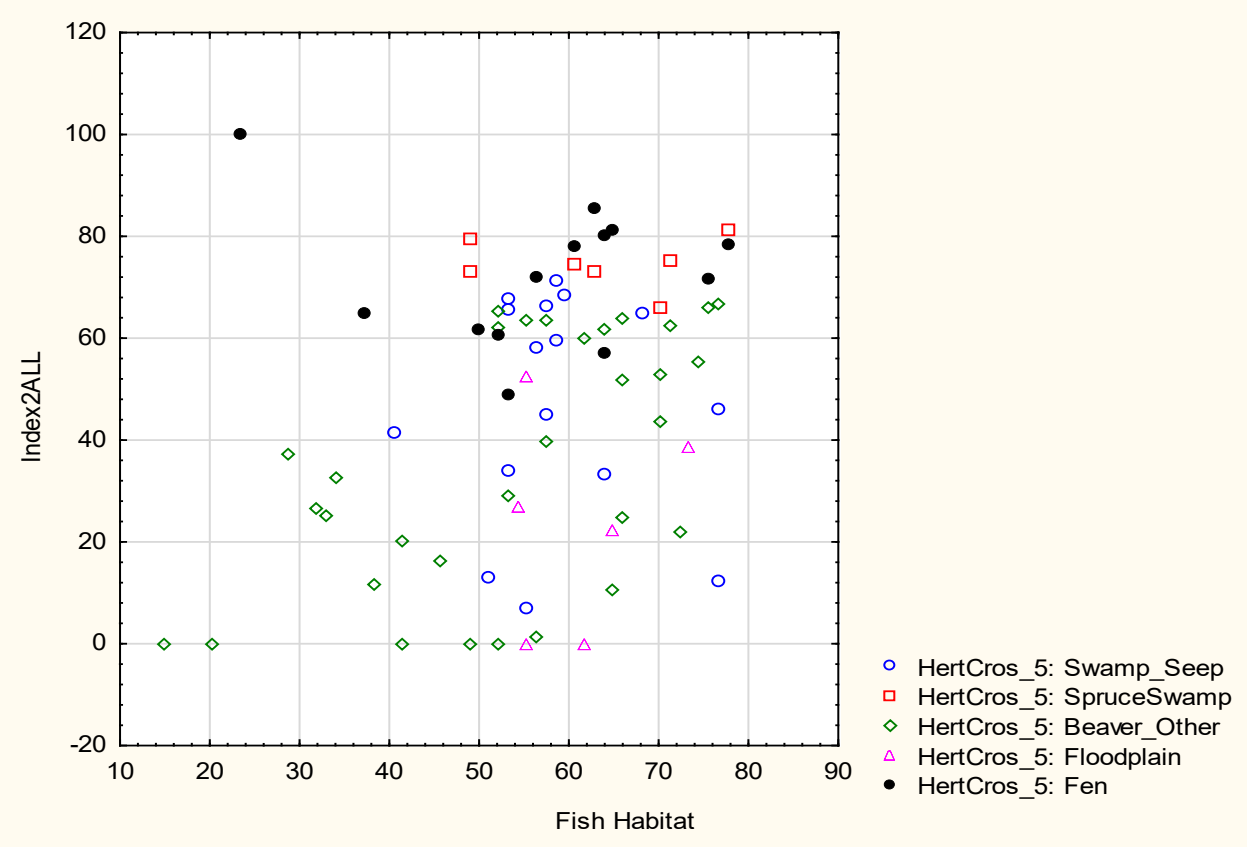

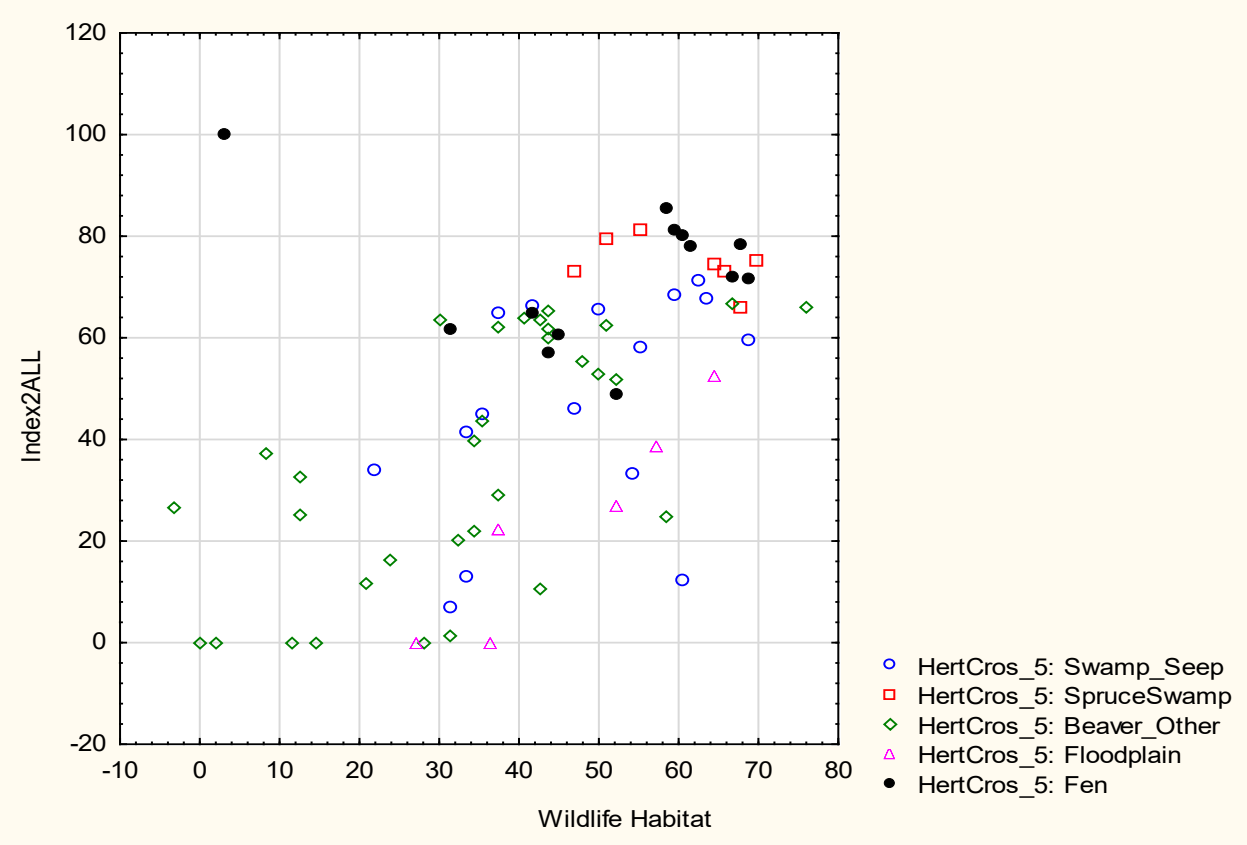

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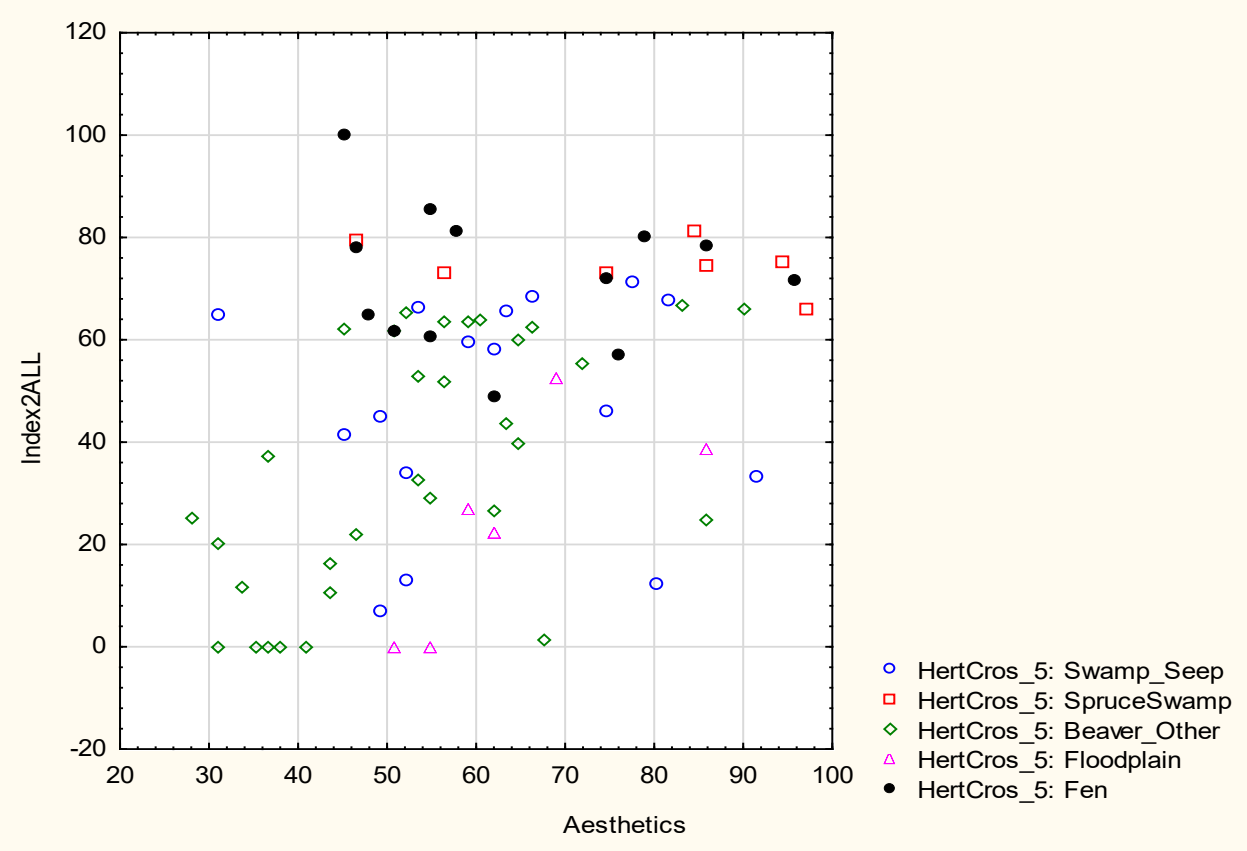

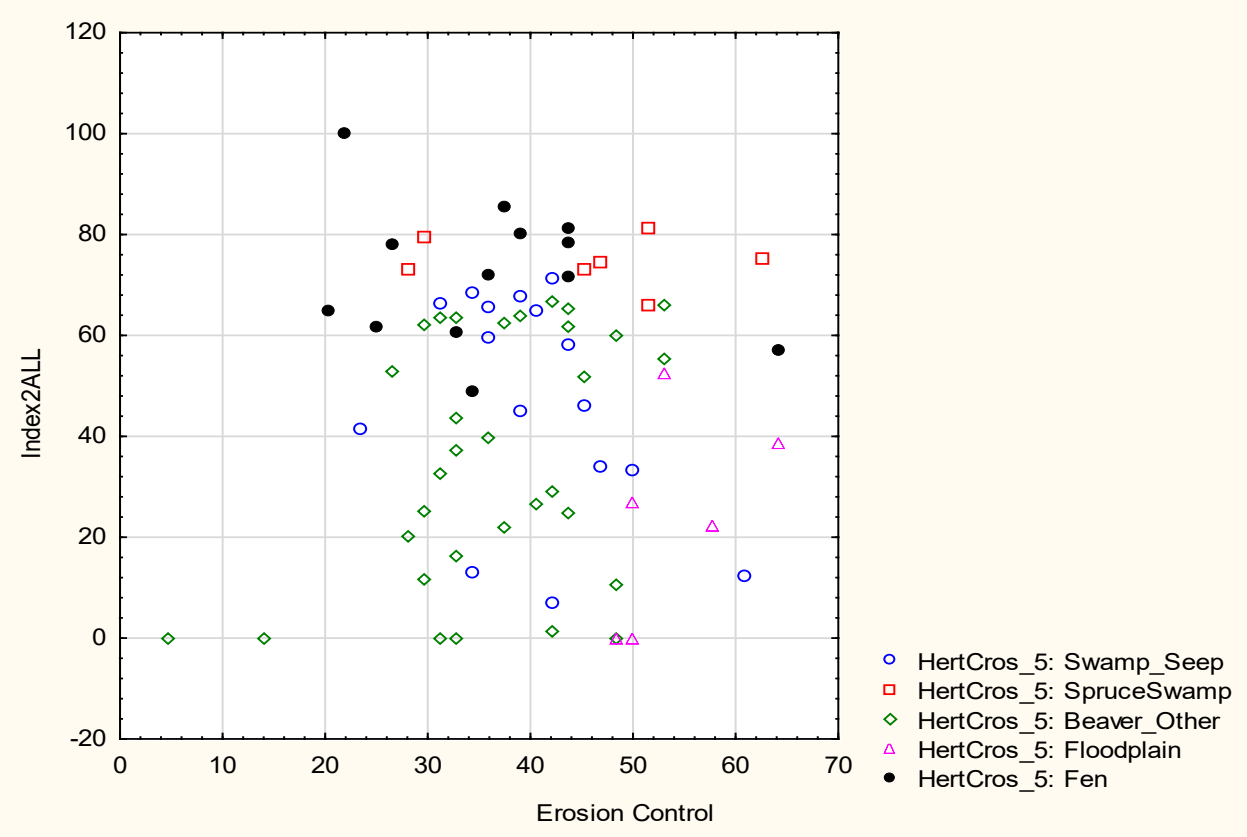

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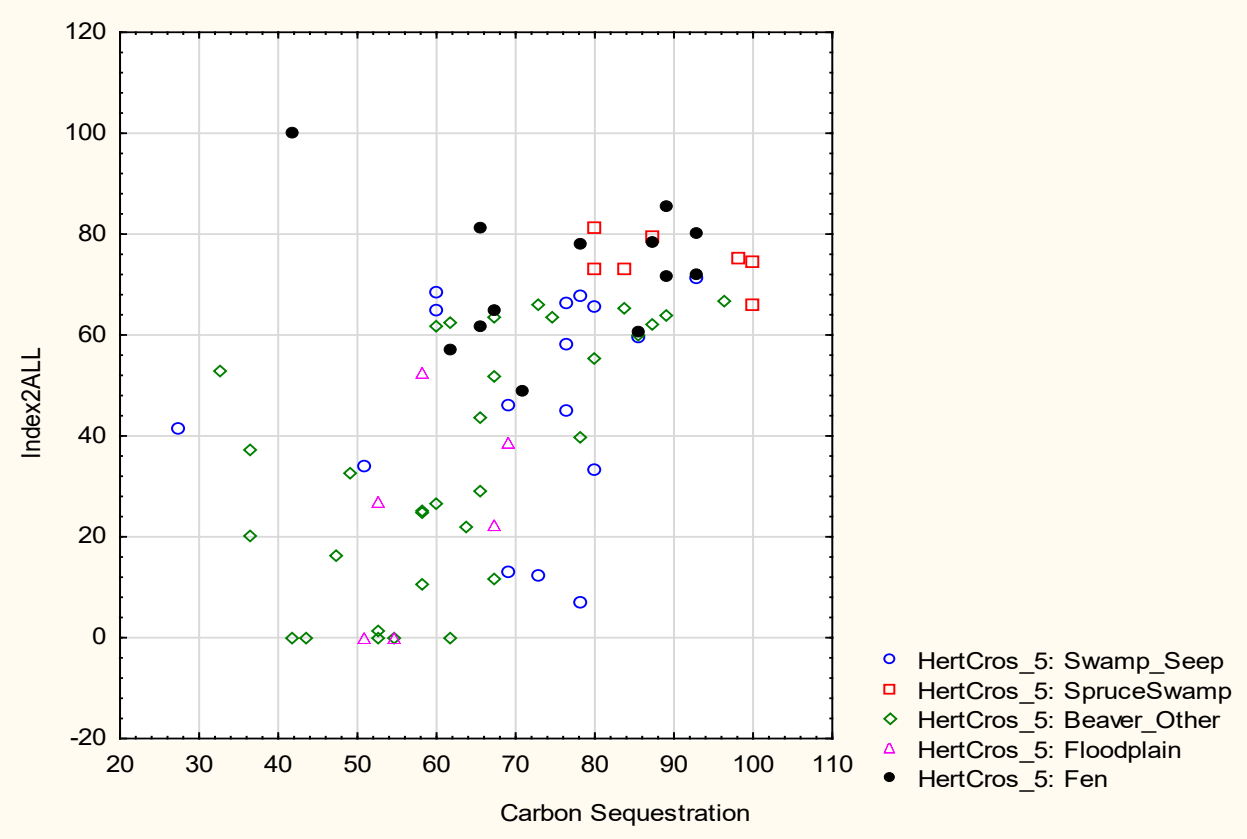

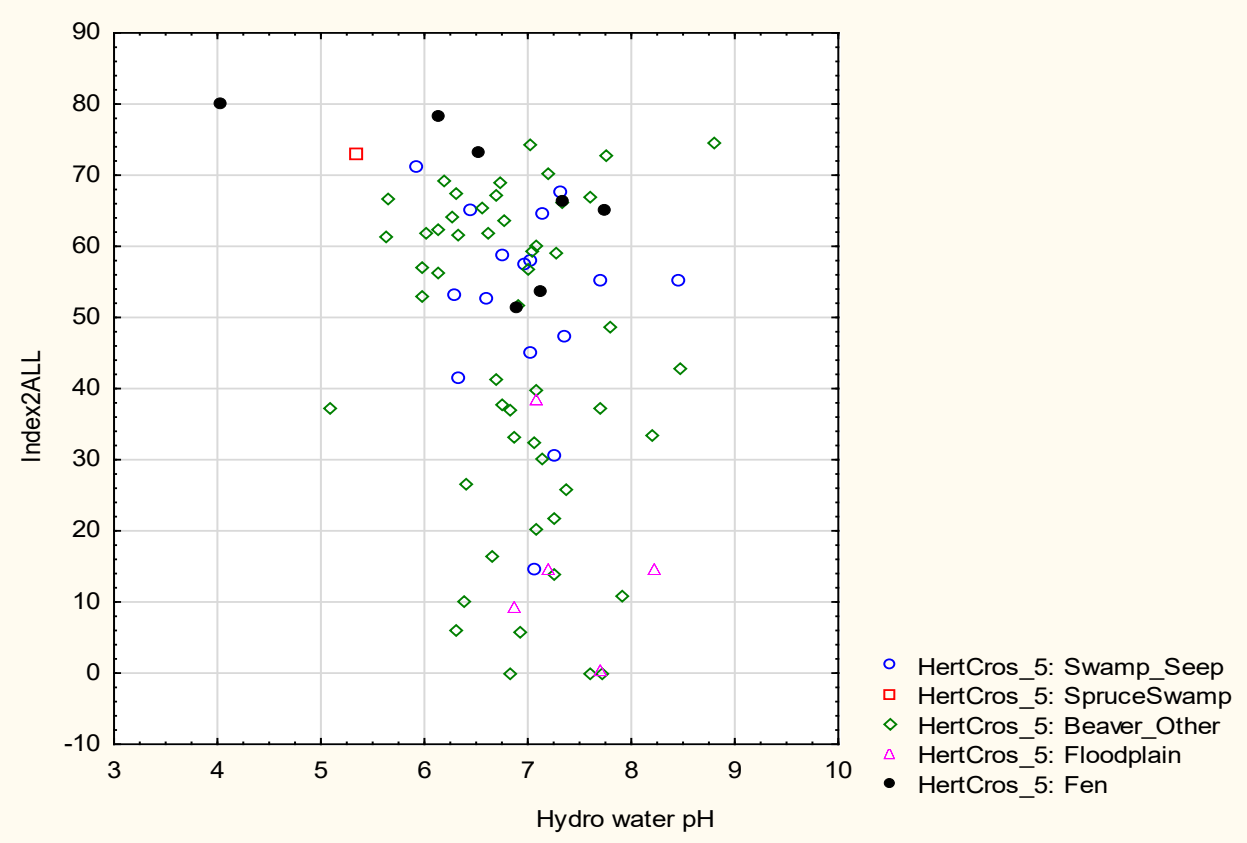

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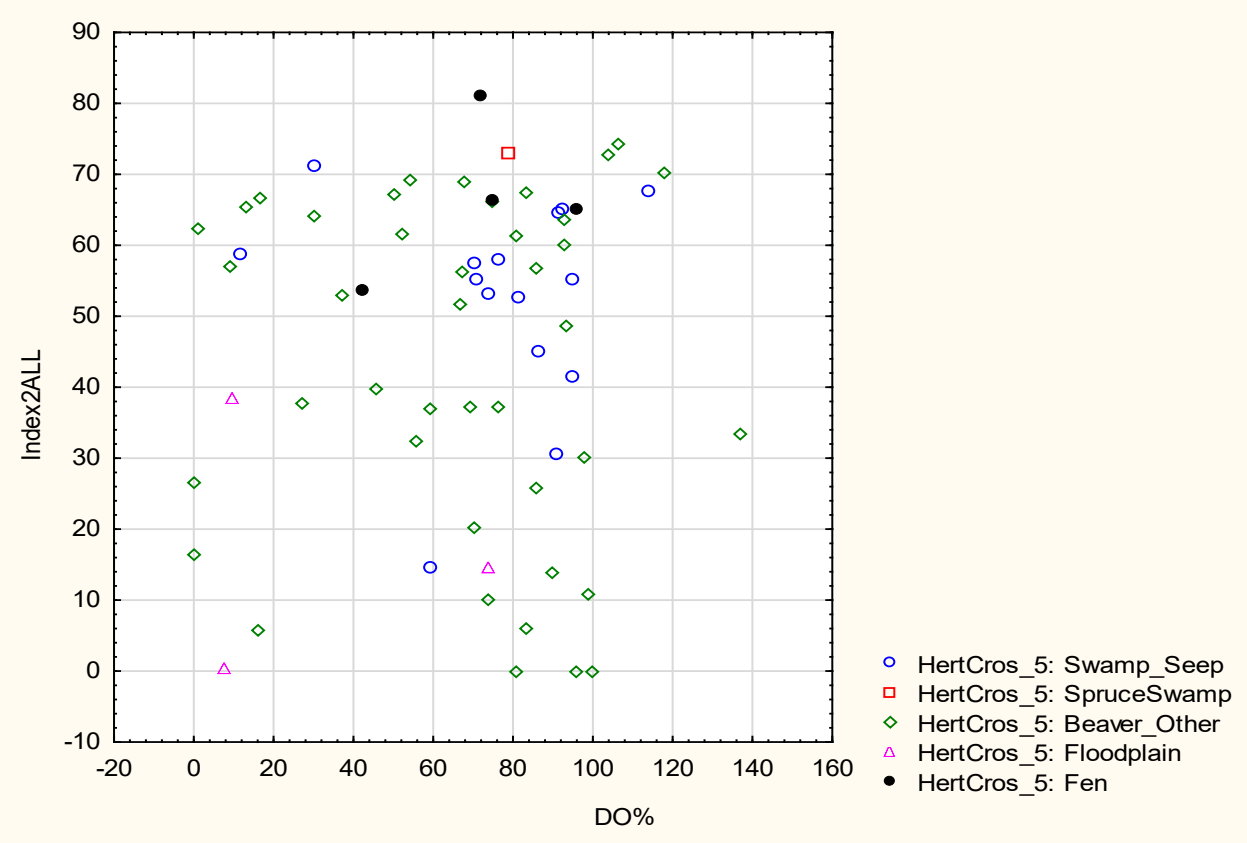

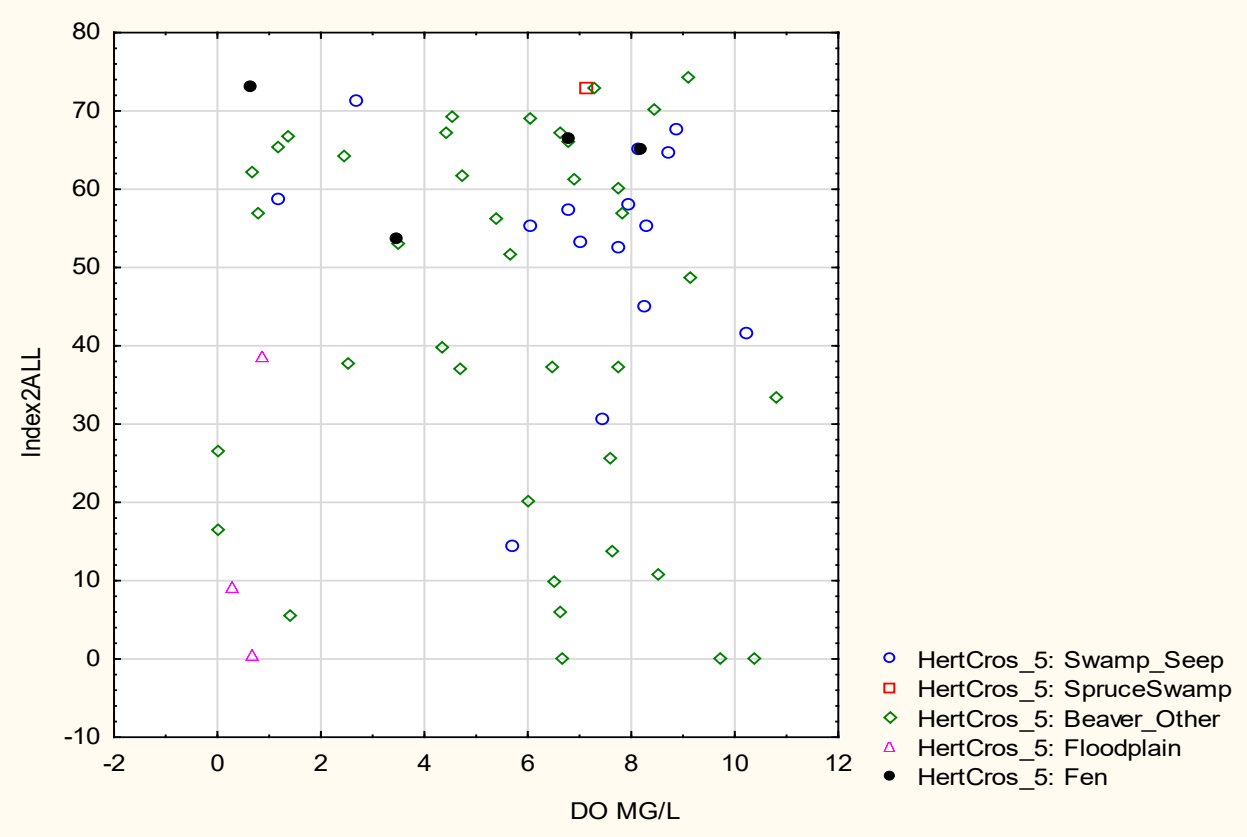

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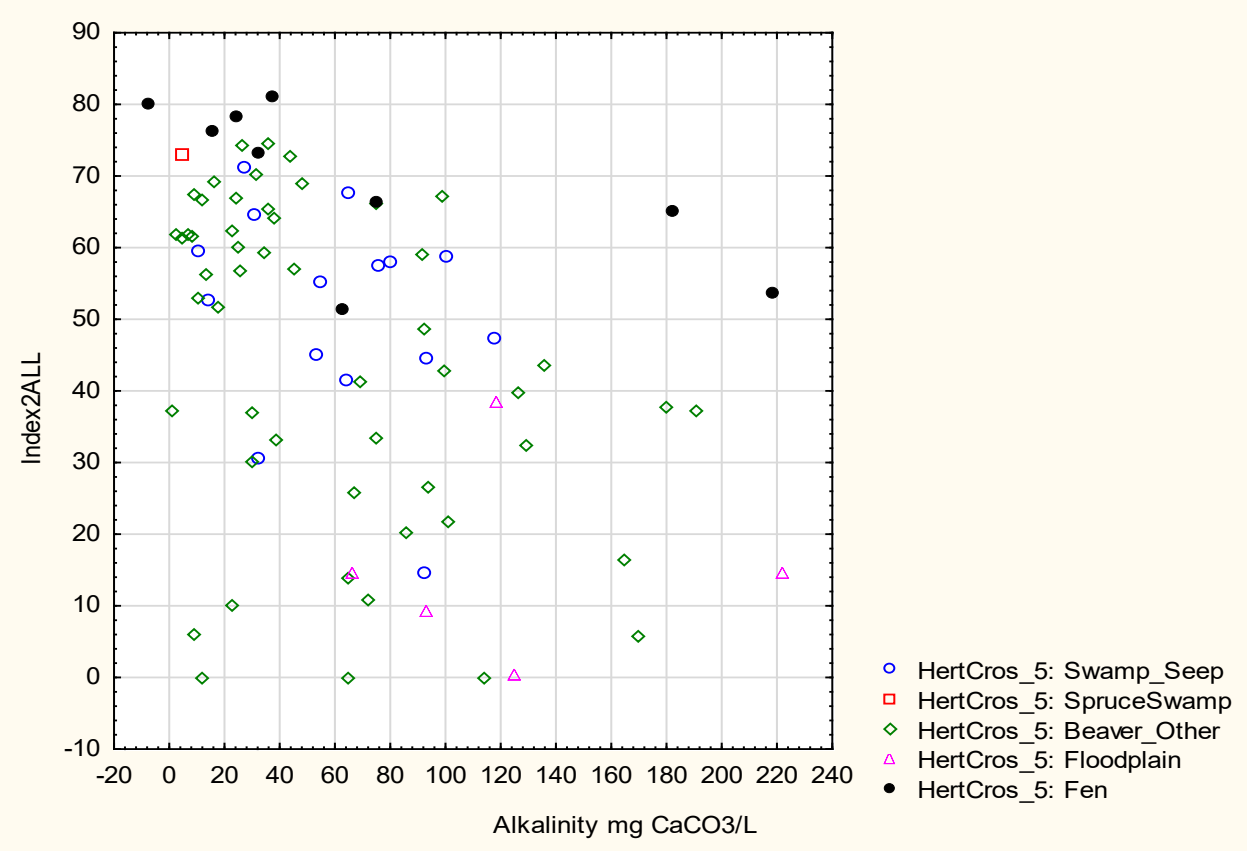

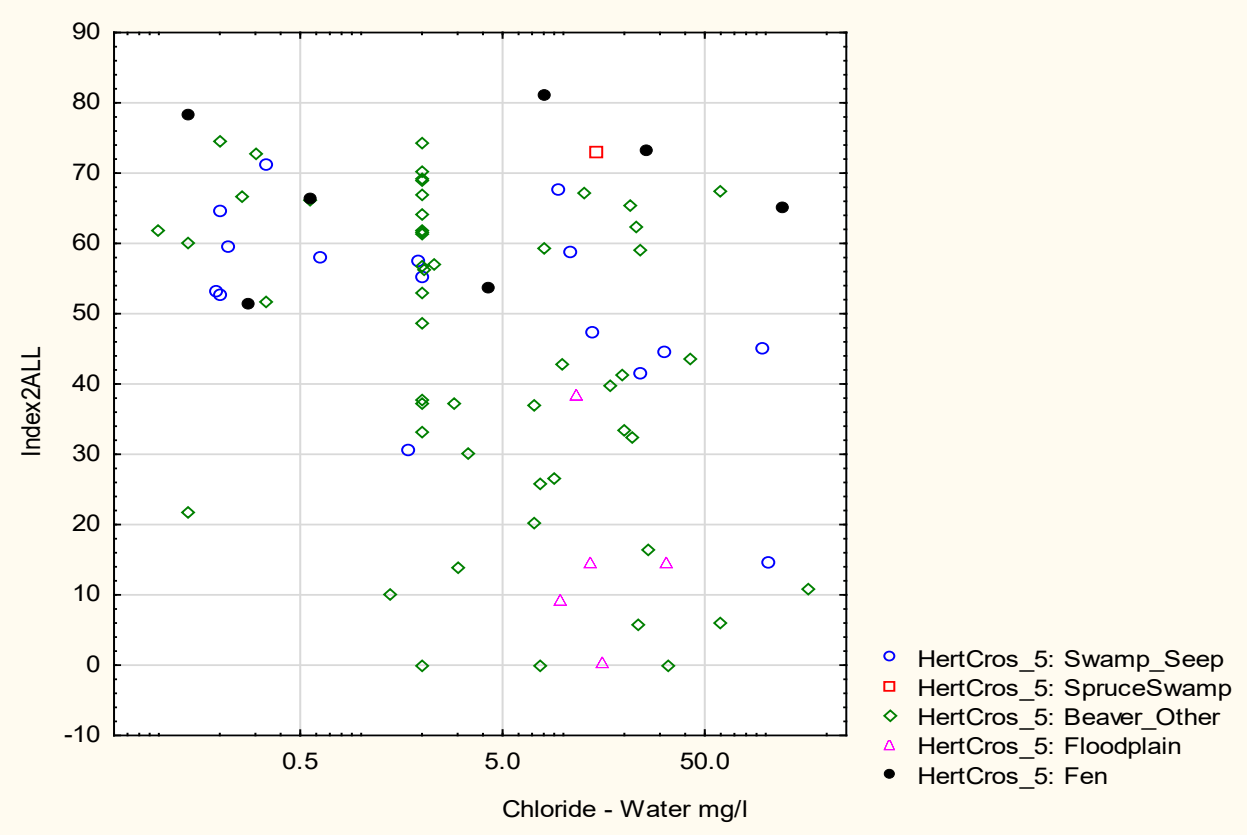

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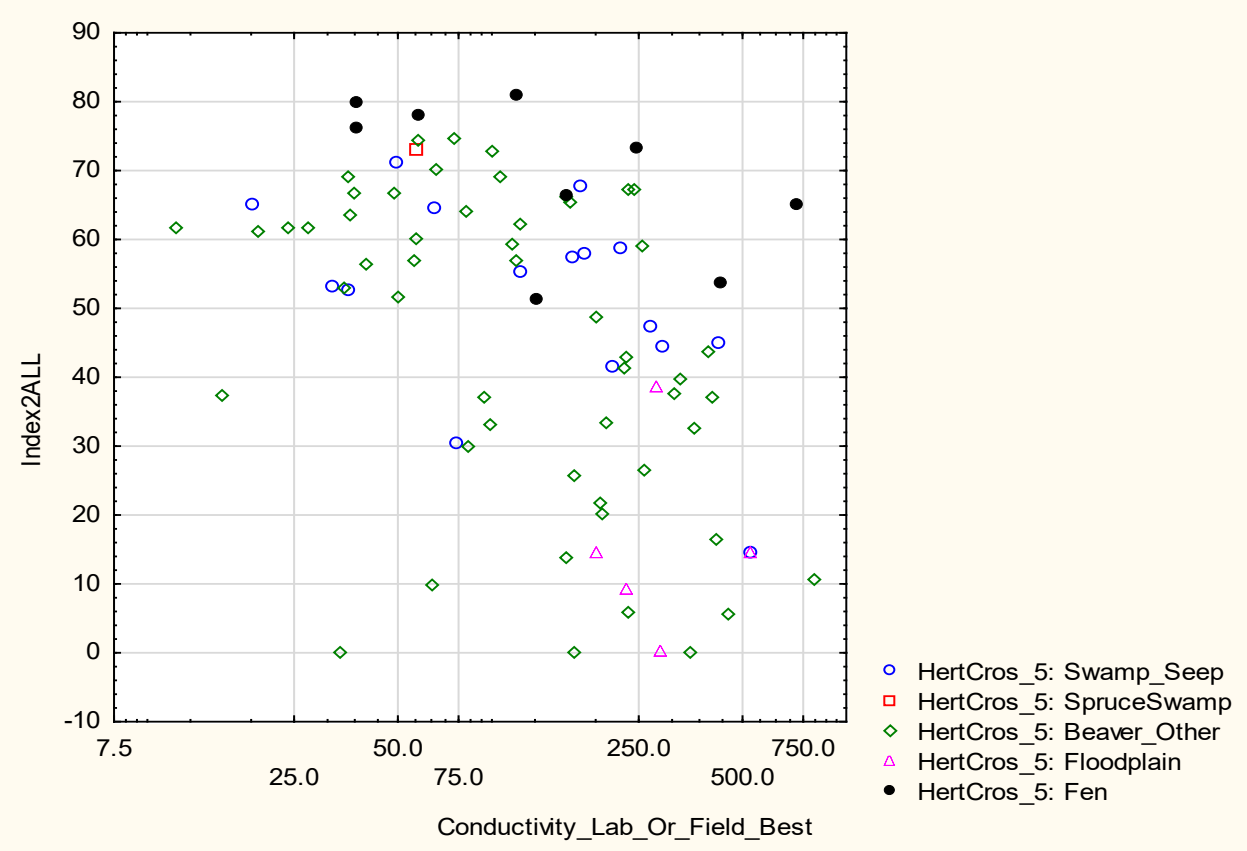

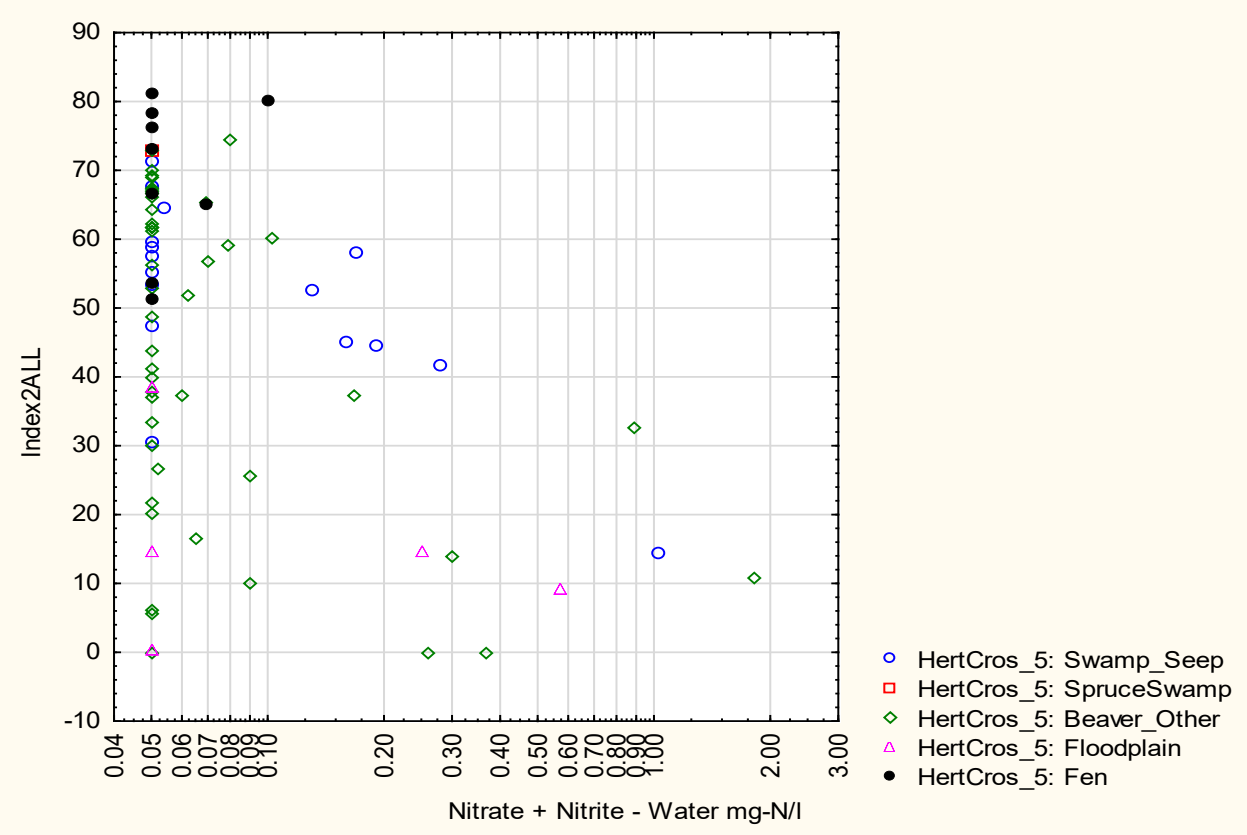

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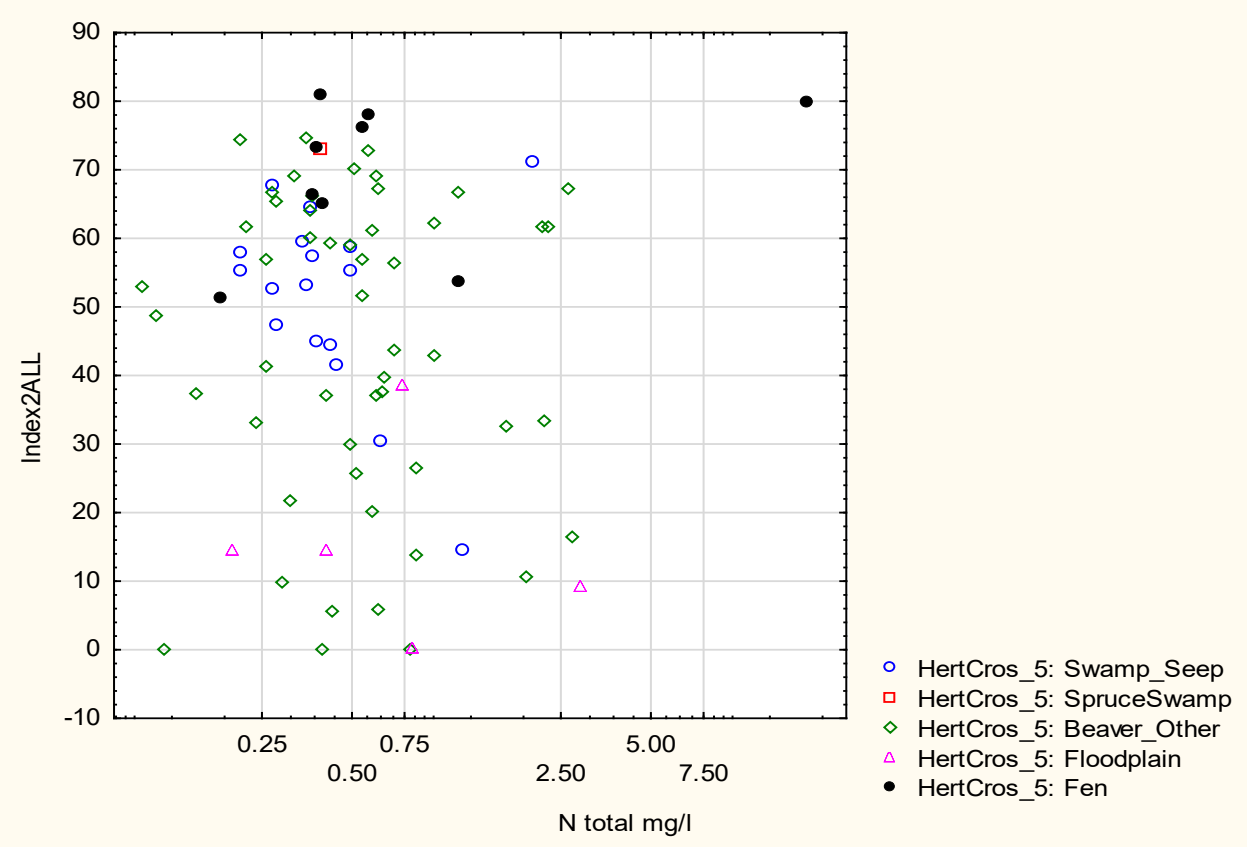

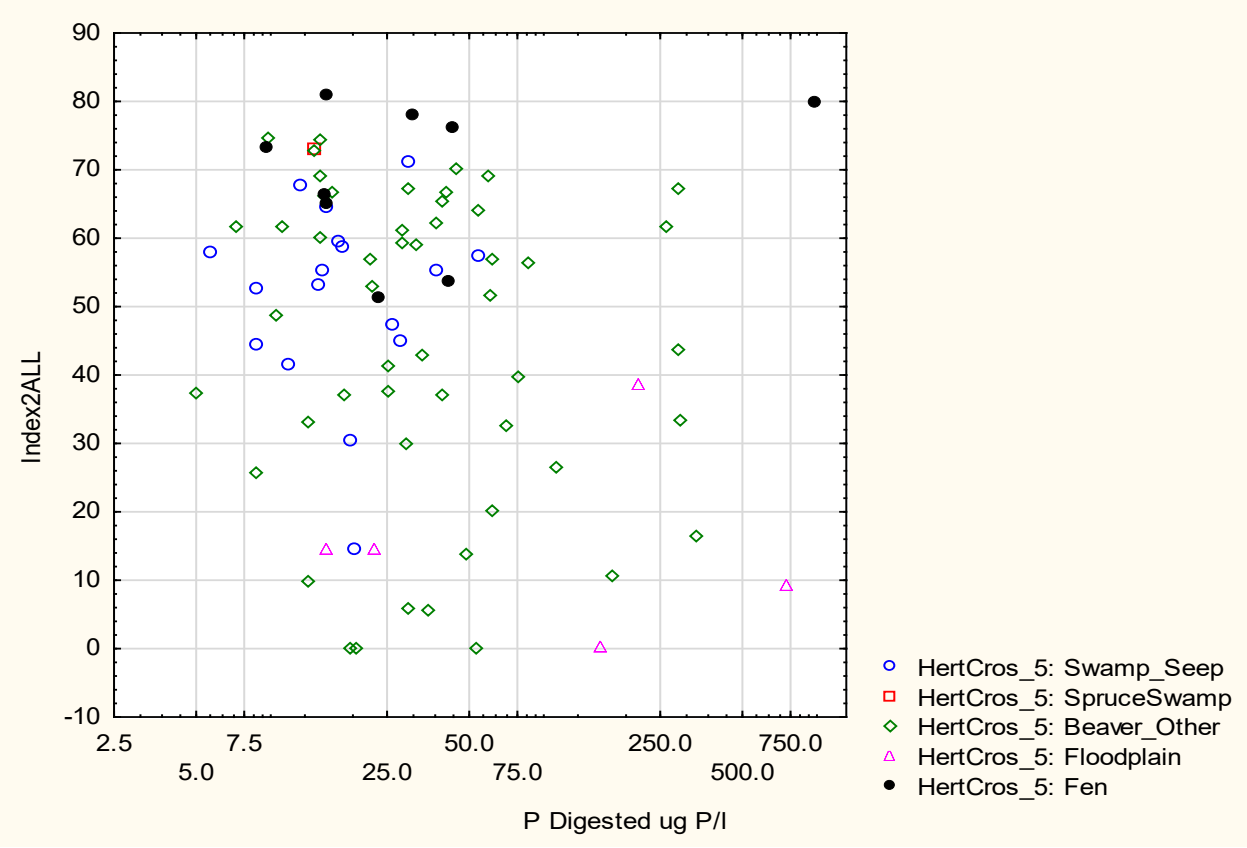

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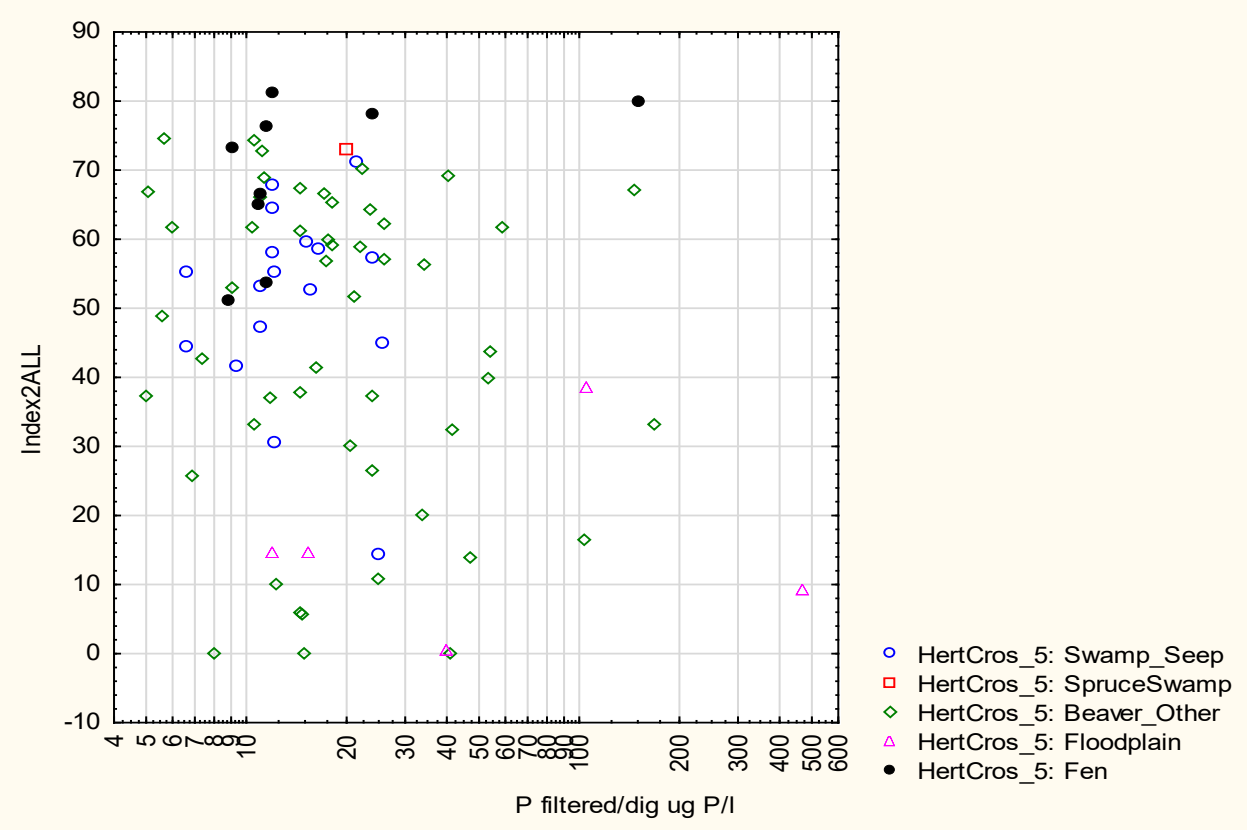

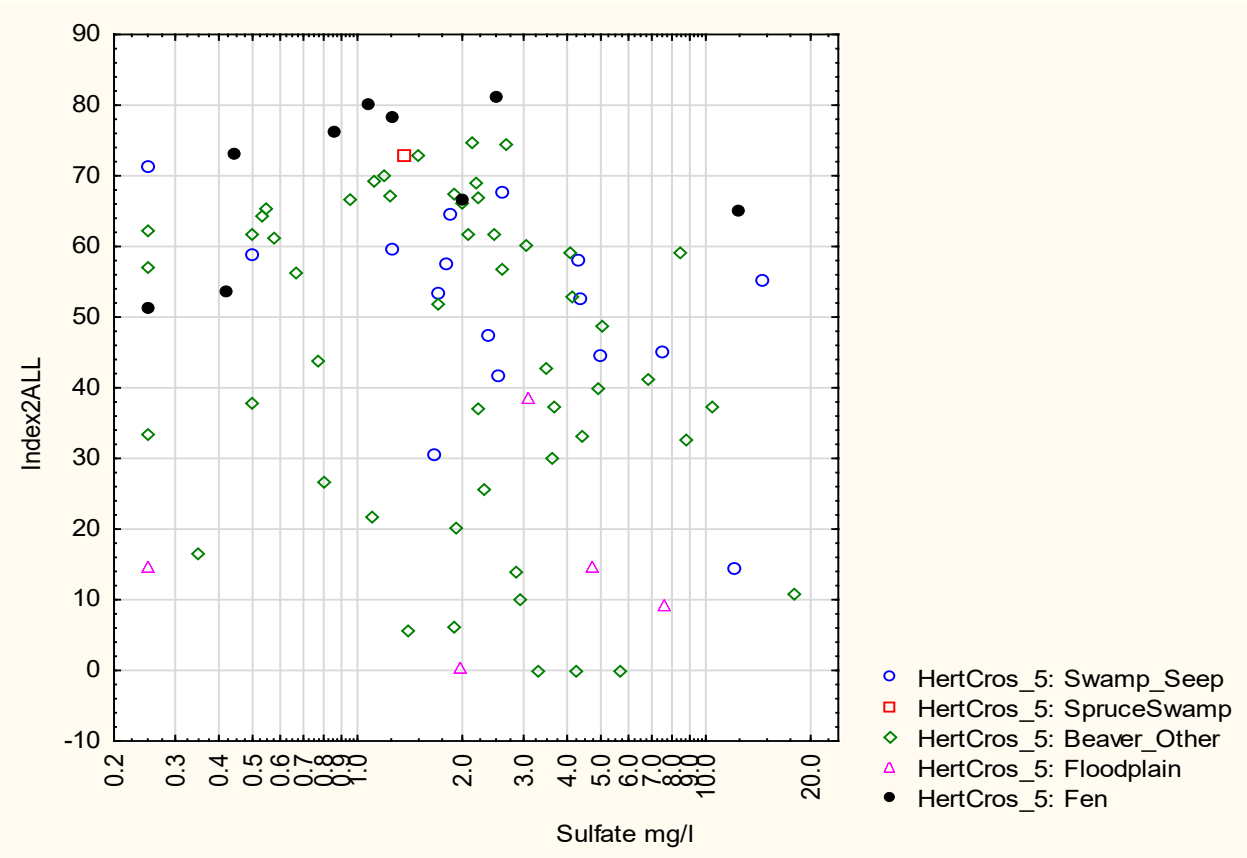

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