



Krumwiede Forest Reserve

Floristic Quality Assessment Results

A Floristic Quality Assessment of Krumwiede Forest Reserve was conducted by Liana May during the summer of 2012.

Floristic quality assessments (FQAs) are a useful tool to measure a plant community's conservation value. To perform an FQA, all vascular plant species in a community are quantified and an index representing the rarity of these species is summed to give a ranking that can be compared across different ecosystem types. This information can then be used to identify high-quality species and groupings of species in order to prioritize conservation and management efforts. At Krumwiede Forest Reserve the total number of species and native species are:

Native Species	Total Species
111	145

The coefficient of conservation (C) is a value between 0 and 10 assigned to each species, representing the species likelihood to occur in an unaltered, pre-European settlement landscape in the state of Michigan (Herman et al 2001). A C-value of 0 is assigned to species with low fidelity to their natural habitat and the ability to persist in numerous habitat conditions. A C-value of 0 is assigned to invasive species, also called adventives. At Krumwiede Forest Reserve the mean C-values are:

Native Mean C	Mean C w/ Adventives
3.9	3

The coefficient of wetness (W) is assigned to each species depending on their probability to occur in wetlands, where species with a W-value of -5 are obligatory wetland species, and those with a W-value of +5 are upland species. At Krumwiede Forest Reserve the mean coefficients of wetness are:

Native Mean W	Mean W w/ Adventives
1.1	1.6

FQIs less than 20 have minimal significance, while FQIs greater than 35 represent areas of conservation importance and are floristically significant on a statewide level. Areas with FQIs greater than 50 are extremely rare and represent areas of significant native biodiversity (Herman et al 2001). At Krumwiede Forest Reserve the FQI's are:

Native FQI	FQI w/ Adventives
41.5	36.3

May, L. 2012. Floristic Quality Assessment and Habitat Mapping of Belanger Creek Preserve

Herman, K. D., L. A. Masters, M. R. Penskar, A. A. Reznicek, G. S. Wilhelm, W. W. Brodovich, and K. P. Gardiner. 2001. Floristic Quality Assessment with Wetland Categories and Examples of Computer Applications for the State of Michigan – Revised, 2nd Edition. Michigan Department of Natural Resources, Wildlife, Natural Heritage Program. Lansing, MI. 19 pp. + Appendices.

Table 2. Summary of non-native species. Aggressive invasives include *Cirsium arvense* and *C. vulgare*.

SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
AEGOPodium PODAGRARIA	0	FAC	Ad P-Forb	GOUTWEED
AGROSTIS GIGANTEA	0	FAC	Ad P-Grass	REDTOP
ALLIUM VINEALE	3	FACU	Ad P-Forb	FIELD GARLIC
BERTEROA INCANA	5	UPL	Ad A-Forb	HOARY ALYSSUM
CERASTIUM FONTANUM	3	FACU	Ad P-Forb	MOUSE EAR CHICKWEED
CHRYSANTHEMUM LEUCANTHEMUM	5	UPL	Ad P-Forb	OX EYE DAISY
CIRSIUM ARVENSE	3	FACU	Ad P-Forb	CANADIAN THISTLE
CIRSIUM VULGARE	4	FACU-	Ad B-Forb	BULL THISTLE
EPILOBIUM PARVIFLORUM	3	FACU	Ad P-Forb	WILLOW HERB
EPIPACTIS HELLEBORINE	5	UPL	Ad P-Forb	HELLEBORINE
FESTUCA ARUNDINACEA	2	FACU+	Ad P-Grass	TALL FESCUE
GALIUM ODORATUM	5	UPL	Ad P-Forb	SWEET WOODRUFF
HIERACIUM AURANTIACUM	5	UPL	Ad P-Forb	ORANGE HAWKWEED
HIERACIUM PILOSELLOIDES	5	UPL	Ad P-Forb	GLAUCOUS KING DEVIL
HYPERICUM PERFORATUM	5	UPL	Ad P-Forb	COMMON ST. JOHN'S WORT
LEONURUS CARDIACA	5	UPL	Ad P-Forb	MOTHERWORT
LOLIUM PERENNE	3	FACU	Ad P-Grass	PERENNIAL RYE GRASS
LONICERA MORROWII	5	UPL	Ad Shrub	MORROW HONEYSUCKLE
LYCHNIS CORONARIA	5	UPL	Ad P-Forb	MULLEIN PINK
MALUS PUMILA	5	UPL	Ad Tree	APPLE
MALVA MOSCHATA	5	UPL	Ad P-Forb	MUSK MALLOW
PHLEUM PRATENSE	3	FACU	Ad P-Grass	TIMOTHY
PLANTAGO LANCEOLATA	0	FAC	Ad P-Forb	ENGLISH PLANTAIN
POA COMPRESSA	2	FACU+	Ad P-Grass	CANADA BLUEGRASS
ROBINIA PSEUDOACACIA	4	FACU-	Ad Tree	BLACK LOCUST
RUMEX ACETOSELLA	0	FAC	Ad P-Forb	SHEEP SORREL
RUMEX CRISPUS	-1	FAC+	Ad P-Forb	CURLY DOCK
SILENE VULGARIS	5	UPL	Ad P-Forb	BLADDER CAMPION
SORBARIA SORBIFOLIA	5	UPL	Ad Shrub	FALSE SPIRAEA
TARAXACUM OFFICINALE	3	FACU	Ad P-Forb	COMMON DANDELION
TRIFOLIUM HYBRIDUM	1	FAC-	Ad P-Forb	ALSIKE CLOVER
VERBASCUM THAPSUS	5	UPL	Ad B-Forb	COMMON MULLEIN
VERONICA OFFICINALIS	5	UPL	Ad P-Forb	COMMON SPEEDWELL
VICIA VILLOSA	5	UPL	Ad A-Forb	HAIRY VETCH

Table 3. Summary of high conservation-value species (MNF= mesic northern forest, NWM= northern wet meadow, DNF=dry-mesic northern forest)

C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME	Location
7	Actaea pachypoda	5	UPL	Nt P-Forb	DOLL'S EYES	MNF
7	Dicentra canadensis	5	UPL	Nt P-Forb	SQUIRREL CORN	MNF
7	Dicentra cucullaria	5	UPL	Nt P-Forb	DUTCHMAN'S BREECHES	MNF
7	Melica smithii	5	UPL	Nt P-Grass	MELIC GRASS	MNF
7	Oxalis acetosella	3	FACU	Nt P-Forb	NORTHERN WOOD SORREL	NWM
7	Panicum meridionale	5	UPL	Nt P-Grass	MAT PANIC GRASS	NWM
7	Potentilla palustris	-5	OBL	Nt P-Forb	MARSH CINQUEFOIL	NWM
7	Solidago caesia	3	FACU	Nt P-Forb	BLUE STEMMED GOLDENROD	NWM, MNF
8	Chamaedaphne calyculata	-5	OBL	Nt Shrub	LEATHERLEAF	NWM
8	Corallorhiza odontorhiza	5	UPL	Nt P-Forb	FALL CORAL ROOT	MNF
8	Dulichium arundinaceum	-5	OBL	Nt P-Sedge	THREE WAY SEDGE	NWM
8	Oenothera oakesiana	5	UPL	Nt B-Forb	EVENING PRIMROSE	NWM
8	Oryzopsis racemosa	5	UPL	Nt P-Grass	RICE GRASS	DNF
10	Conopholis americana	5	UPL	Nt P-Forb	SQUAWROOT	DNF, NWM
10	Epifagus virginiana	5	UPL	Nt P-Forb	BEECH DROPS	DNF, MNF

Site:	Krumwiede Forest Preserve
Locale:	Leelanau Co, MI
By:	Liana May

FLORISTIC QUALITY DATA		Native		Adventive			
111	NATIVE SPECIES	Tree	111	76.60%	Tree	34	23.40%
145	Total Species	Shrub	16	11.00%	Shrub	2	1.40%
3.9	NATIVE MEAN C	W-Vine	9	6.20%	W-Vine	2	1.40%
3	W/Adventives	H-Vine	1	0.70%	H-Vine	0	0.00%
41.5	NATIVE FQI	P-Forb	0	0.00%	P-Forb	0	0.00%
36.3	W/Adventives	B-Forb	51	35.20%	B-Forb	21	14.50%
1.1	NATIVE MEAN W	A-Forb	1	0.70%	A-Forb	2	1.40%
1.6	W/Adventives	P-Grass	8	5.50%	P-Grass	5	3.40%
AVG:	Faculative (-)	A-Grass	8	5.50%	A-Grass	0	0.00%
		P-Sedge	0	0.00%	P-Sedge	0	0.00%
		A-Sedge	10	6.90%	A-Sedge	0	0.00%
		Fern	0	0.00%		0	0.00%
			7	4.80%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACEPEN		5 Acer pensylvanicum	3	FACU	Nt Tree	STRIPED MAPLE
ACERUB		1 Acer rubrum	0	FAC	Nt Tree	RED MAPLE
ACESAU		5 Acer saccharum	3	FACU	Nt Tree	SUGAR MAPLE
ACHMIL		1 Achillea millefolium	3	FACU	Nt P-Forb	YARROW
ACOCAL		6 Acorus calamus	-5	OBL	Nt P-Forb	SWEET FLAG
ACTPAC		7 Actaea pachypoda	5	UPL	Nt P-Forb	DOLL'S EYES
AEGPOD		0 AEGOPIDIUM PODAGRARIA	0	FAC	Ad P-Forb	GOUTWEED
AGRGRY		2 Agrimonia gryposepala	2	FACU+	Nt P-Forb	TALL AGRIMONY
AGRIGIG		0 AGROSTIS GIGANTEA	0	FAC	Ad P-Grass	REDTOP
ALLTRI		5 Allium tricoccum	2	FACU+	Nt P-Forb	WILD LEEK
ALLVIN		0 ALLIUM VINEALE	3	FACU	Ad P-Forb	FIELD GARLIC
AMBART		0 Ambrosia artemisiifolia	3	FACU	Nt A-Forb	COMMON RAGWEED
AMEARB		4 Amelanchier arborea	3	FACU	Nt Tree	JUNEBERRY
ANAMAR		3 Anaphalis margaritacea	5	UPL	Nt P-Forb	PEARLY EVERLASTING
ARANUD		5 Aralia nudicaulis	3	FACU	Nt P-Forb	WILD SARSAPARILLA
ASCINC		6 Asclepias incarnata	-5	OBL	Nt P-Forb	SWAMP MILKWEED
ASCSYR		1 Asclepias syriaca	5	UPL	Nt P-Forb	COMMON MILKWEED
ASTMAC		4 Aster macrophyllus	5	UPL	Nt P-Forb	BIG LEAVED ASTER
ATHFIL		4 Athyrium filix-femina	0	FAC	Nt Fern	LADY FERN

BERINC	0 BERTEROA INCANA	5 UPL	Ad A-Forb	HOARY ALYSSUM
BETPAP	2 Betula papyrifera	2 FACU+	Nt Tree	PAPER BIRCH
BOEICYL	5 Boehmeria cylindrica	-5 OBL	Nt P-Forb	FALSE NETTLE
CXARTT	3 Carex arctata	5 UPL	Nt P-Sedge	SEDGE
CXCRIN	4 Carex crinita	-4 FACW+	Nt P-Sedge	SEDGE
CXFOEN	3 Carex foenea	5 UPL	Nt P-Sedge	SEDGE
CXGRAA	4 Carex gracillima	3 FACU	Nt P-Sedge	SEDGE
CXORMO	5 Carex ormostachya	5 UPL	Nt P-Sedge	SEDGE
CXPEDU	5 Carex pedunculata	5 UPL	Nt P-Sedge	SEDGE
CXSCOP	4 Carex scoparia	-3 FACW	Nt P-Sedge	SEDGE
CXUTRI	5 Carex utriculata	-5 OBL	Nt P-Sedge	SEDGE
CERFON	0 CERASTIUM FONTANUM	3 FACU	Ad P-Forb	MOUSE EAR CHICKWEED
CHACAL	8 Chamaedaphne calyculata	-5 OBL	Nt Shrub	LEATHERLEAF
CHRLEU	0 CHRYSANTHEMUM LEUCANTHEMUM	5 UPL	Ad P-Forb	OX EYE DAISY
CIRARV	0 CIRSIUM ARVENSE	3 FACU	Ad P-Forb	CANADIAN THISTLE
CIRVUL	0 CIRSIUM VULGARE	4 FACU-	Ad B-Forb	BULL THISTLE
CLAVIR	4 Claytonia virginica	3 FACU	Nt P-Forb	SPRING BEAUTY
CLIVUL	3 Clinopodium vulgare	5 UPL	Nt P-Forb	WILD BASIL
CONAME	10 Conopholis americana	5 UPL	Nt P-Forb	SQUAWROOT
CONCAN	0 Conyza canadensis	1 FAC-	Nt A-Forb	HORSEWEED
CORODO	8 Corallorhiza odontorhiza	5 UPL	Nt P-Forb	FALL CORAL ROOT
CORSTO	2 Cornus stolonifera	-3 FACW	Nt Shrub	RED OSIER DOGWOOD
DANSPI	4 Danthonia spicata	5 UPL	Nt P-Grass	POVERTY GRASS; OATGRASS
DICCAN	7 Dicentra canadensis	5 UPL	Nt P-Forb	SQUIRREL CORN
DICCUC	7 Dicentra cucullaria	5 UPL	Nt P-Forb	DUTCHMAN'S BREECHES
DRYINT	5 Dryopteris intermedia	0 FAC	Nt Fern	EVERGREEN WOODFERN
DULARU	8 Dulichium arundinaceum	-5 OBL	Nt P-Sedge	THREE WAY SEDGE
EPIVIR	10 Epifagus virginiana	5 UPL	Nt P-Forb	BEECH DROPS
EPIPAR	0 EPILOBIUM PARVIFLORUM	3 FACU	Ad P-Forb	WILLOW HERB
EPIHEL	0 EPIPACTIS HELLEBORINE	5 UPL	Ad P-Forb	HELLEBORINE
EREHIE	2 Erechtites hieracifolia	3 FACU	Nt A-Forb	FIREWEED
ERISTR	4 Erigeron strigosus	1 FAC-	Nt P-Forb	DAISY FLEABANE
ERYAME	5 Erythronium americanum	5 UPL	Nt P-Forb	YELLOW TROUT LILY
EUPMAM	4 Eupatorium maculatum	-5 OBL	Nt P-Forb	JOE PYE WEED
EUPPER	4 Eupatorium perfoliatum	-4 FACW+	Nt P-Forb	COMMON BONESET
EUPMAA	0 Euphorbia maculata	4 FACU-	Nt A-Forb	NODDING SPURGE
EUTGRA	3 Euthamia graminifolia	-2 FACW-	Nt P-Forb	GRASS LEAVED GOLDENROD
FAGGRA	6 Fagus grandifolia	3 FACU	Nt Tree	AMERICAN BEECH
FESARU	0 FESTUCA ARUNDINACEA	2 FACU+	Ad P-Grass	TALL FESCUE
FESSAX	6 Festuca saximontana	5 UPL	Nt P-Grass	FESCUE
FRAVIR	2 Fragaria virginiana	1 FAC-	Nt P-Forb	WILD STRAWBERRY
FRAAME	5 Fraxinus americana	3 FACU	Nt Tree	WHITE ASH

GALLAN	4 Galium lanceolatum	5 UPL	Nt P-Forb	YELLOW WILD LICORICE
GALODO	0 GALIUM ODORATUM	5 UPL	Ad P-Forb	SWEET WOODRUFF
GALTRD	6 Galium trifidum	-4 FACW+	Nt P-Forb	SMALL BEDSTRAW
GEUALE	3 Geum aleppicum	-1 FAC+	Nt P-Forb	YELLOW AVENS
GOOBL	6 Goodyera oblongifolia	5 UPL	Nt P-Forb	MENZIES' RATTLESNAKE PLANTAIN
HACVIR	1 Hackelia virginiana	1 FAC-	Nt P-Forb	BEGGAR'S LICE
HIEAUR	0 HIERACIUM AURANTIACUM	5 UPL	Ad P-Forb	ORANGE HAWKWEED
HIEPIS	0 HIERACIUM PILOSELLOIDES	5 UPL	Ad P-Forb	GLAUCOUS KING DEVIL
HYPPER	0 HYPERICUM PERFORATUM	5 UPL	Ad P-Forb	COMMON ST. JOHN'S WORT
JUNEFF	3 Juncus effusus	-5 OBL	Nt P-Forb	SOFT STEMMED RUSH
JUNTEN	1 Juncus tenuis	0 FAC	Nt P-Forb	PATH RUSH
JUNCOI	4 Juniperus communis	3 FACU	Nt Shrub	COMMON or GROUND JUNIPER
LEMMIN	5 Lemna minor	-5 OBL	Nt A-Forb	SMALL DUCKWEED
LEOCAR	0 LEONURUS CARDIACA	5 UPL	Ad P-Forb	MOTHERWORT
LOLPER	0 LOLIUM PERENNE	3 FACU	Ad P-Grass	PERENNIAL RYE GRASS
LONMOR	0 LONICERA MORROWII	5 UPL	Ad Shrub	MORROW HONEYSUCKLE
LYCCOR	0 LYCHNIS CORONARIA	5 UPL	Ad P-Forb	MULLEIN PINK
LYCOBS	5 Lycopodium obscurum	3 FACU	Nt Fern Ally	GROUND PINE
LYCAME	2 Lycopus americanus	-5 OBL	Nt P-Forb	COMMON WATER HOREHOUND
MAICAC	4 Maianthemum canadense	0 FAC	Nt P-Forb	CANADA MAYFLOWER
MALPUM	0 MALUS PUMILA	5 UPL	Ad Tree	APPLE
MALMOS	0 MALVA MOSCHATA	5 UPL	Ad P-Forb	MUSK MALLOW
MELSMI	7 Melica smithii	5 UPL	Nt P-Grass	MELIC GRASS
OENOAK	8 Oenothera oakesiana	5 UPL	Nt B-Forb	EVENING PRIMROSE
ONOSEN	2 Onoclea sensibilis	-3 FACW	Nt Fern	SENSITIVE FERN
ORYASP	6 Oryzopsis asperifolia	5 UPL	Nt P-Grass	ROUGH LEAVED RICE GRASS
ORYRAC	8 Oryzopsis racemosa	5 UPL	Nt P-Grass	RICE GRASS
OSMLON	3 Osmorhiza longistylis	4 FACU-	Nt P-Forb	SMOOTH SWEET CICELY
OSMREG	5 Osmunda regalis	-5 OBL	Nt Fern	ROYAL FERN
OSTVIR	5 Ostrya virginiana	4 FACU-	Nt Tree	IRONWOOD; HOP HORNBEAM
OXAACE	7 Oxalis acetosella	3 FACU	Nt P-Forb	NORTHERN WOOD SORREL
PANIMP	3 Panicum implicatum	0 FAC	Nt P-Grass	PANIC GRASS
PANMER	7 Panicum meridionale	5 UPL	Nt P-Grass	MAT PANIC GRASS
PHAARU	0 Phalaris arundinacea	-4 FACW+	Nt P-Grass	REED CANARY GRASS
PHLPRA	0 PHLEUM PRATENSE	3 FACU	Ad P-Grass	TIMOTHY
PHYAME	2 Phytolacca americana	1 FAC-	Nt P-Forb	POKEWEED
PILFON	5 Pilea fontana	-3 FACW	Nt A-Forb	BOG CLEARWEED
PINSTR	3 Pinus strobus	3 FACU	Nt Tree	WHITE PINE
PLALAN	0 PLANTAGO LANCEOLATA	0 FAC	Ad P-Forb	ENGLISH PLANTAIN
PLARUG	0 Plantago rugelii	0 FAC	Nt A-Forb	RED STALKED PLANTAIN
POACOM	0 POA COMPRESSA	2 FACU+	Ad P-Grass	CANADA BLUEGRASS
POLPUB	5 Polygonatum pubescens	5 UPL	Nt P-Forb	DOWNY SOLOMON SEAL

POLCIL	3 Polygonum cilinode	5 UPL	Nt P-Forb	FRINGED FALSE BUCKWHEAT
POPGRA	4 Populus grandidentata	3 FACU	Nt Tree	BIG TOOTHED ASPEN
POPTRE	1 Populus tremuloides	0 FAC	Nt Tree	QUAKING ASPEN
POTNOR	0 Potentilla norvegica	0 FAC	Nt A-Forb	ROUGH CINQUEFOIL
POTPAL	7 Potentilla palustris	-5 OBL	Nt P-Forb	MARSH CINQUEFOIL
PRUPEN	3 Prunus pennsylvanica	4 FACU-	Nt Tree	PIN CHERRY
PRUSER	2 Prunus serotina	3 FACU	Nt Tree	WILD BLACK CHERRY
PTEAQU	0 Pteridium aquilinum	3 FACU	Nt Fern	BRACKEN FERN
QUERUB	5 Quercus rubra	3 FACU	Nt Tree	RED OAK
ROBPSE	0 ROBINIA PSEUDOACACIA	4 FACU-	Ad Tree	BLACK LOCUST
RUBALL	1 Rubus allegheniensis	2 FACU+	Nt Shrub	COMMON BLACKBERRY
RUBOCC	1 Rubus occidentalis	5 UPL	Nt Shrub	BLACK RASPBERRY
RUBSTR	2 Rubus strigosus	-2 FACW-	Nt Shrub	WILD RED RASPBERRY
RUDHIR	1 Rudbeckia hirta	3 FACU	Nt P-Forb	BLACK EYED SUSAN
RUMACL	0 RUMEX ACETOSELLA	0 FAC	Ad P-Forb	SHEEP SORREL
RUMCRI	0 RUMEX CRISPUS	-1 FAC+	Ad P-Forb	CURLY DOCK
SALLUC	3 Salix lucida	-4 FACW+	Nt Shrub	SHINING WILLOW
SALPET	1 Salix petiolaris	-4 FACW+	Nt Shrub	SLENDER WILLOW
SAMRAC	3 Sambucus racemosa	2 FACU+	Nt Shrub	RED BERRIED ELDER
SCICYP	5 Scirpus cyperinus	-5 OBL	Nt P-Sedge	WOOL GRASS
SCRLAN	5 Scrophularia lanceolata	2 FACU+	Nt P-Forb	EARLY FIGWORT
SILVUL	0 SILENE VULGARIS	5 UPL	Ad P-Forb	BLADDER CAMPION
SOLALT	1 Solidago altissima	3 FACU	Nt P-Forb	TALL GOLDENROD
SOLCAE	7 Solidago caesia	3 FACU	Nt P-Forb	BLUE STEMMED GOLDENROD
SOLGIG	3 Solidago gigantea	-3 FACW	Nt P-Forb	LATE GOLDENROD
SOLRUG	3 Solidago rugosa	-1 FAC+	Nt P-Forb	ROUGH GOLDENROD
SORSOR	0 SORBARIA SORBIFOLIA	5 UPL	Ad Shrub	FALSE SPIRAEA
TAROFF	0 TARAXACUM OFFICINALE	3 FACU	Ad P-Forb	COMMON DANDELION
THEPAL	2 Thelypteris palustris	-4 FACW+	Nt Fern	MARSH FERN
TILAME	5 Tilia americana	3 FACU	Nt Tree	BASSWOOD
TRIFRA	6 Triadenum fraseri	-5 OBL	Nt P-Forb	MARSH ST. JOHN'S WORT
TRIBOR	5 Trientalis borealis	-1 FAC+	Nt P-Forb	STARFLOWER
TRIHYP	0 TRIFOLIUM HYBRIDUM	1 FAC-	Ad P-Forb	ALSIKE CLOVER
TSUCAN	5 Tsuga canadensis	3 FACU	Nt Tree	HEMLOCK
TYPLAT	1 Typha latifolia	-5 OBL	Nt P-Forb	BROAD LEAVED CATTAIL
VERTHA	0 VERBASCUM THAPSUS	5 UPL	Ad B-Forb	COMMON MULLEIN
VERHAS	4 Verbena hastata	-4 FACW+	Nt P-Forb	BLUE VERVAIN
VEROFF	0 VERONICA OFFICINALIS	5 UPL	Ad P-Forb	COMMON SPEEDWELL
VICVIL	0 VICIA VILLOSA	5 UPL	Ad A-Forb	HAIRY VETCH
VIOCAN	5 Viola canadensis	5 UPL	Nt P-Forb	CANADA VIOLET
VIOPUB	4 Viola pubescens	4 FACU-	Nt P-Forb	YELLOW VIOLET
VITRIP	3 Vitis riparia	-2 FACW-	Nt W-Vine	RIVERBANK GRAPE