APPENDIX 13. Terrestrial Habitat Classes Used In the IWAP.

The nine habitat classes defined by Iowa GAP were used in the IWAP. Habitat classes are made up of related vegetation alliances that can be identified from aerial photographs, have been entered into a Geographical Information System (GIS) data-bases and can be mapped.

13-1. FOREST (Map13-1): Generally, >60% canopy of tree species with crowns interlocking
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Name	Description	Alliance
Pine Forest	Round-crowned temperate or subpolar needle-leaved evergreen forest.	*Pinus strobus*
Eastern Red Cedar	Conical-crowned temperate or subpolar needle-leaved evergreen forest.	*Juniperus virginiana*
Evergreen	Round-crowned and conical-crowned evergreen forest.	Not listed
Upland Deciduous	(1) Lowland or submontane cold-deciduous forest.	(1) (*Acer saccharus (A. nigrus) - Tilia*) *americana - (Quercus rubra*
(2) (Quercus rubra - Acer saccharum - (Quercus spp.)		(3) (*Fraxinus pennsylvanica - Ulmus americana - (Juglans nigra - Celtis occidentalis - Robinia pseudoacacia - Acer negundo - Populus spp.*) *(4) Quercus alba (Quercus rubra, Carya spp.*) *(5) Quercus macrocarpa* *(6) Quercus muehlenbergii* *(7) Quercus velutina - (Quercus ellipsoidalis*) 8) (*Quercus imbricaria*
	(2) Montane or boreal cold-deciduous forest.	*Populus tremuloides (Populus grandidentata*)
Mixed Evergreen/	Mixed needle-leaved evergreen -	. *(1)* P*inus strobus - Quercus spp)*

Deciduous	cold-deciduous forest	*(2) Juniperus virginiana - Quercus spp.*

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13-2: WET - FOREST/WOODLAND (Map 13-2): Temporarily or seasonally flooded forest or woodland

Name	Description	Alliance
Temporarily Flooded Forested Wetland	Temporarily flooded cold-deciduous forest.	*(1) Acer saccharinum* *(2) Acer negundo - (Gleditsia triacanthos - Crataegus spp.)* *(3) Betula nigra - (Platanus occidentalis)* *(4) Populus deltoides* (5) *Salix nigra (S. amygdaloides)* *(6) Fraxinus macrocarpa - Quercus bicolor - (Carya laciniosa)*
Seasonally Flooded Forested Wetland	Seasonally flooded cold-deciduous forest.	*Quercus palustris - (Quercus bicolor)*
Temporarily Flooded Deciduous Woodland	Temporarily flooded cold-deciduous woodland.	*Populus deltoides*

13-3: WOODLAND (Map13-3): Open stands of tree species with 25-60% canopy cover

Name	Description	Alliance
Eastern Red Cedar Woodland	Conical-crowned temperate or subpolar needle-leaved evergreen woodland.	*Juniperus virginiana*
Upland Deciduous Woodland	Cold-deciduous woodland.	*(1) Quercus macrocarpa - Quercus (alba, velutina)* *(2) Quercus macrocarpa* *(3) Quercus muehlenbergii*
Mixed Evergreen/	Mixed needle-leaved evergreen -.	*Juniperus virgiana*

Deciduous Woodland Cold-deciduous woodland

13-4, **SHRUBLAND (Map 4-4):** Generally shrubs >0.5 m tall forming >25% cover with <25% tree cover

Name	escription	Alliance
Upland Shrub	Temperate cold-deciduous shrubland	*Cornus spp. - Rhus spp. - (Symphoricarpos spp.)*

13-5. WET SHRUBLAND (Map 4-5): Temporarily, seasonally, semi-permanently flooded or saturated shrubland

Name	Description	Alliance
Temporarily Flooded Shrubland	Temporarily flooded shrubland	*Salix exigua (=S. interior)*
Seasonally Flooded Shrub	Seasonally flooded cold-deciduous shrubland.	(1) *Alnus incana* (2) *Cornus spp. - Salix spp.*
Semi-permanently Flooded Shrub	Semi-permanently flooded cold-deciduous shrubland	*Cephalanthus occidentalis*
Saturated (Bog or Swamp) Shrub	Saturated cold-deciduous shrubland.	*Betula pumila - (Salix spp.*

13-6: WARM SEASON HERBACEOUS VEGETATION (Map 13-6): <25% canopy cover made up of trees or shrub species. Herbs form at least 25% of canopy cover.)

Name	Description	Alliance
Warm Season Grass /Perennial Forb*)*	Tall sod temperate grassland.	1) *Andropogon gerardii - (Panicum virgatum (Sorghastrum nutan* (2) *Andropogon gerardii -* (3) *Andropogon gerardii - Schizachyrium scopariu*

13-7. HERBACEOUS WETLANDS (Map 4-7): Temporarily, seasonally, semi-permanently, permanently flooded and saturated herbaceous wetlands

Name	Description	Alliance
Temporarily Flooded Wetland	Temporarily flooded temperate or subpolar grassland. Sorghastrum nutans	(1) *Andropogon gerardii - (Calamagrostis canadensis-,* (2) *Carex lanuginosa* (3) *Spartina pectinata*
Seasonally Flooded Wetland	Seasonally flooded temperate or subpolar grassland.	(1) *Calamagrostis canadensis* (2) *Carex atherodes (Carex vesicaria*) (3) *Carex lacustris* (4) *Carex (rostrata, utriculata*) (5) *Carex stricta (Carex haydenii*) (6) *Phalaris arundinacea* (7) *Scirpus fluviatilis* (8) *Typha spp. (Scirpus spp. - Juncus spp.*)
Semi-permanently Flooded Wetland	Semi-permanently flooded temperate or. subpolar grassland	(1) *Phragmites australis* (2) *Sagittaria latifolia (S. rigida)* (3) *Scirpus acutus (S. fluviatilis, tabernaemontani*) (4) *Typha (angustifolia, latifolia) - (Scirpus spp.*) (5) *Zizania (aquatica, palustris*)
Saturated Wetland	Saturated temperate or subpolar grassland.	(1) *Carex lanuginosa - Scirpus spp.* (2) *Carex stricta* 3) *Carex lasiocarpa (Spagnum* (*spp.*) (4) *Carex spp. - Typha spp.* (5) *Carex spp. - Rhynochospora capillacea*

Permanently Flooded Wetland	Permanently flooded temperate or subpolar hydromorphic rooted vegetation.	(1) *Nuphar lutea - Nymphaea odorata* (2) *Potamogeton spp. - Ceratophyllum spp. - (Myriophyllum spp. - Elodea spp)* (3) *Rupee maritima* (4) *Vallisneria americana*

13-8. SAVANNA (Map 4-8): Temperate grassland with sparse coniferous or cold-deciduous tree layer

Name	Description	Alliance
Grassland with sparse shrubs and trees	Tall and medium-tall temperate grassland with sparse. coniferous or mixed tree layer	(1) *Juniperus virginiana* (2) *Populus deltoides* (3) *Quercus macrocarpa - (Quercus alba*) (4) *Quercus velutina - (Quercus ellipsoidalis*) *(5) Schizachyrium scoparium - Bouteloua curtipendula (Juniperus virginiana - Quercus spp.)*

13-9. AGRICULTURAL LANDS (Map13-9):(Lands normally worked to produce a crop or grazed by livestock

Name	Description	Alliance
Cool Season Grassland	Cool season grassland (smooth brome, forage crops, pasture	
Cropland	Worked land normally on an annual basis in corn, soybeans, sorghum, fallow fields or other crops.	

APPENDIX 14. HABITAT PREFERENCES FOR SPECIES COVERED BY THE IWAP

14-1. Terrestrial Wildlife

Table 14-1. Habitat preferences of SGCN - Breeding Birds

Habitat Class: 1 = Forest, 2 = Wet Forest/Woodland, 3 = Woodland, 4 = Shrubland, 5 = Wet Shrubland, 6 = Warm Season Herbaceous, 7 = Herbaceous Wetland, 8 = savanna, 9 = Agricultural Land

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Habitat Preference
Trumpeter Swan	*Cygnus buccinator*	Statewide*	7	wetland
Northern Pintail	*Anas acuta*	N 1/2	6,7,9	wetland, grassland
Canvasback	*Aythya valisineria*	NW, N central	7	wetland
Redhead	*Aythya americana*	NW, N Central	7	wetland
Northern Bobwhite	*Colinus virginianus*	S 3/4	4,6,9	grassland, shrubland
Ruffed Grouse	*Bonasa umbellus*	NE, SE, S Central	1,3	dense forest, open woodland
Sharp-tailed Grouse	*Tympanuchus phasianellus*	W*	4,6, 9	grassland, shrubland
Greater Prairie-Chicken	*Tympanuchus cupido*	SW*, S Central	6, 9	grassland
American Bittern	*Botaurus lentiginosus*	N 2/3	7	wetland
Least Bittern	*Ixobrychus exilis*	Statewide	7	wetland
Black-crowned Night-Heron	*Nycticorax nycticorax*	N 2/3	5,7	wetland, wet shrubland
Yellow-crowned Night-Heron	*Nyctanassa violacea*	E 1/3	2,7	wetland, riparian forest
Osprey	*Pandion haliaetus*	NW*, E 1/2	2,7	wetland, riparian forest
Bald Eagle	*Haliaeetus leucocephalus*	Statewide	1,2	riparian forest, deciduous forest
Northern Harrier	*Circus cyaneus*	Statewide	6,7,9	grassland, marsh
Red-shouldered Hawk	*Buteo lineatus*	E 3/4	1,3	riparian forest
Broad-winged Hawk	*Buteo platypterus*	Statewide	1	deciduous forest
Swainson's Hawk	*Buteo swainsoni*	Statewide except SE	3,8	savanna, open woodland
Peregrine Falcon	*Falco peregrinus*	E 1/2*	1, 2	riparian forest, deciduous forest
King Rail	*Rallus elegans*	E, N Central	7	wetland
Common Gallinule	*Gallinula chloropus*	N, E, W	7	wetland

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Habitat Preference
Sandhill Crane	*Grus canadensis*	E 1/2	6,7,9	wetland, grassland
Piping Plover	*Charadrius melodus*	Missouri River	7	wetland
Upland Sandpiper	*Bartramia longicauda*	Statewide	6,9	grassland
American Woodcock	*Scolopax minor*	Statewide	1,2,3	deciduous forest, open woodland, riparian forest
Wilson's Phalarope	*Phalaropus tricolor*	N 1/2	6,7,9	wetland, grassland
Least Tern	*Sterna antillarum*	Missouri River	7	wetland
Black Tern	*Chlidonias niger*	Statewide	7	wetland
Forster's Tern	*Sterna forsteri*	N Central, central, E	7	wetland
Yellow-billed Cuckoo	*Coccyzus americanus*	Statewide	1,3,4	deciduous forest, shrubland, open woodland
Black-billed Cuckoo	*Coccyzus erythropthalmus*	Statewide	1,2,3,4	riparian and deciduous forest, open woodland, shrubland
Barn Owl	*Tyto alba*	Statewide*	8	savanna
Burrowing Owl	*Athene cunicularia*	NW, N Central	6,9	grassland
Long-eared Owl	*Asio otus*	Statewide	2,3,8	open woodland, savanna, deciduous forest
Short-eared Owl	*Asio flammeus*	Statewide	6,9	grassland
Common Nighthawk	*Chordeiles minor*	Statewide	6,8,9	grassland, savanna
Eastern Whip-poor-will	*Caprimulgus vociferus*	Statewide	1,3	deciduous forest, open woodland
Chimney Swift	*Chaetura pelagica*	Statewide		
Red-headed Woodpecker	*Melanerpes erythrocephalus*	Statewide	2,3,8	savanna, open woodland, deciduous forest
Acadian Flycatcher	*Empidonax virescens*	E, S, Central	1,2	deciduous forest, riparian forest
Willow Flycatcher	*Empidonax traillii*	Statewide	5	wet shrubland
Least Flycatcher	*Empidonax minimus*	NE	1,3	deciduous forest, open woodland
Loggerhead Shrike	*Lanius ludovicianus*	SW 2/3	4,8	savanna, shrubland
White-Eyed Vireo	*Vireo griseus*	Statewide	3,4	open woodland, shrubland

Common Name	Scientific Name	Distribution	Habitat Class	Habitat Preference
Bell's Vireo	*Vireo bellii*	Statewide	4,5,8	shrubland, savanna
Brown Creeper	*Certhia americana*	NE	1,2	deciduous and riparian forest
Bewick's Wren	*Thryomanes bewickii*	SE	3,4	open woodland, shrubland
Sedge Wren	*Cistothorus platensis*	Statewide	6,7,9	grassland, wetland
Veery	*Catharus fuscescens*	E 3/4	1,2	riparian forest, deciduous forest
Wood Thrush	*Hylocichla mustelina*	Statewide	1,2	deciduous forest, riparian forest
Northern Mockingbird	*Mimus polyglottos*	S 3/4	3,4,8	open woodland, savanna, shrubland
Blue-winged Warbler	*Vermivora pinus*	E 2/3	1,3,4	deciduous forest, shrubland
Cerulean Warbler	*Dendroica cerulea*	E, S, W Central	1,2	deciduous forest
Black-and-white Warbler	*Mniotilta varia*	E,S	1	deciduous forest
Prothonotary Warbler	*Protonotaria citrea*	NE 2/3	2	riparian forest
Worm-eating Warbler	*Helmitheros vermivorus*	E	1	deciduous forest
Louisiana Waterthrush	*Seiurus motacilla*	E,S,W Central	1,2	riparian and deciduous forest
Kentucky Warbler	*Oporornis formosus*	E,S,W Central	1,2	deciduous and riparian forest
Hooded Warbler	*Wilsonia citrina*	E,S,W Central	1	deciduous forest
Yellow-breasted Chat	*Icteria virens*	E,S,W Central	3,4,8	open woodland, shrubland
Field Sparrow	*Spizella pusilla*	Statewide	4,6,9	shrubland, grassland
Grasshopper Sparrow	*Ammodramus savannarum*	Statewide	6,9	grassland
Henslow's Sparrow	*Ammodramus henslowii*	S 1/4	6,9	grassland
Dickcissel	*Spiza americana*	Statewide	6,9	grassland
Bobolink	*Dolichonyx oryzivorus*	Statewide	6,9	grassland
Eastern Meadowlark	*Sturnella magna*	Statewide	6,8,9	grassland, savanna

Table 14-2. Habitat Preferences of SGCN - Migratory Birds

Habitat Class: 1 = Forest, 2 = Wet Forest/Woodland, 3 = Woodland, 4 = Shrubland, 5 = Wet Shrubland, 6 = Warm Season Herbaceous, 7 = Herbaceous Wetland, 8 = savanna, 9 = Agricultural Land

Common Name	Scientific Name	Distribution	Habitat Class	Habitat Preference
American White Pelican	*Pelecanus erythrorhynchos*	N,Central	7	wetland
Yellow Rail	*Coturnicops noveboracensis*	N,E,Central	6,7,9	wetland, grassland
Whooping Crane	*Grus americana*	W, NE	6,7,9	wetland, grassland
American Golden-Plover	*Pluvialis dominica*	Statewide	7	wetland
American Avocet	*Recurvirostra americana*	Statewide	7	wetland
Solitary Sandpiper	*Tringa solitaria*	Statewide	7	wetland
Greater Yellowlegs	*Tringa melanoleuca*	Statewide	7	wetland
Lesser Yellowlegs	*Tringa flavipes*	Statewide	7	wetland
Hudsonian Godwit	*Limosa haemastica*	Statewide	7	wetland
Marbled Godwit	*Limosa fedoa*	W	7	wetland
Stilt Sandpiper	*Caladris himantopus*	Statewide	7	wetland
Buff-breasted Sandpiper	*Tryngites subruficollis*	W	7,9	wetland, short grassland
Short-billed Dowitcher	*Limnodromus griseus*	Statewide	7	wetland
Olive-sided Flycatcher	*Contopus cooperi*	Statewide	1,3	coniferous forest, openings & edges
Golden-winged Warbler	*Vermivora chrysoptera*	E	1,3,4	deciduous forest, open woodland shrubland
Canada Warbler	*Wilsonia canadensis*	Statewide	1	deciduous forest
Le Conte's Sparrow	*Ammodramus leconteii*	Statewide	6,7,9	grassland
Nelson's Sparrow	*Ammodramus nelsoni*	Statewide	6,7,9	grassland, wetland
Rusty Blackbird	*Euphagus carolinus*	Statewide	2,5,7	riparian forest, wetland, wet shrubland

Table 14-3. Habitat Preferences of SGCN - Mammals

Habitat Class: 1 = Forest, 2 = Wet Forest/Woodland, 3 = Woodland, 4 = Shrubland, 5 = Wet Shrubland, 6 = Warm Season Herbaceous, 7 = Herbaceous Wetland, 8 = savanna, 9 = Agricultural Land

Common Name	Scientific Name	Distribution	Habitat Class	Habitat Preference
Elliot's Short-tailed Shrew	*Blarina hylophaga*	extreme southwest	1,3,6,8	forest, woodland, savanna, grassland
Least Shrew	*Cryptotis parva*	west	2,3,4,8, R	woodland, savanna, grassland, riparian
Hayden's Shrew	*Sorex haydeni*	western one-third	1,2,3,6, R	grassland, woodland, riparian
Northern Myotis	*Myotis septentrionalis*	state-wide	1	forest
Indiana Bat	*Myotis sodalis*	southeast two-thirds	1	forest, upland and riparian
Evening Bat	*Nycticeius humeralis*	southern half	1,2	forest, riparian
Gray Fox	*Urocyon cinereoargenteus*	southern third	1,2	Forest, woodland
Bobcat	*Lynx rufus*	state-wide	1,3,4,6	forest, woodland, grassland
Spotted Skunk	*Spilogale putorius*	state-wide	1,6,7	grassland, savanna, forest, and farmsteads
Franklin's Ground Squirrel	*Spermophilus franklinii*	state-wide	6,9	tallgrass prairie, savanna and roadsides
Red Squirrel	*Tamiasciurus hudsonicus*	northeast one-fourth	1	forest
Southern Flying Squirrel	*Glaucomys volans*	East, south (disjunct)	1	forest
Plains Pocket Gopher	*Geomys bursarius*	state-wide	6,7,8,9	
Plains Pocket Mouse	*Perognathus flavescens*	west, disjunct in east	6	prairie, sand and loess
Red-backed Vole	*Clethrionomys gapperi*	north central	1	forest
Prairie Vole	*Microtus ochrogaster*	state-wide	6	upland prairie
Woodland Vole	*Microtus pinetorum*	east two-thirds	1	forest
Southern Bog Lemming	*Synaptomys cooperi*	state-wide	7	moist grassland
White-tailed Jackrabbit	*Lepus townsendii*	north-central	6,9	shortgrass prairie and pasture

Table 14-4. Habitat Preferences of SGCN - Butterflies

Habitat Class: 1 = Forest, 2 = Wet Forest/Woodland, 3 = Woodland, 4 = Shrubland, 5 = Wet Shrubland, 6 = Warm Season Herbaceous, 7 = Herbaceous Wetland, 8 = savanna, 9 = Agricultural Land

Common Name	Scientific Name	Habitat Preference	Habitat Class	Iowa Distribution
Pipevine Swallowtail	*Battus philenor*	Forest, open fields and roadsides	1,3	SE 1/4
Zebra Swallowtail	*Eurytides marcellus*	Woodland along rivers	3R	S 1/2
Olympia Marble	*Euchloe olympia*	Open woods,river bluffs, poor soils and grasslands	3,6,8	W and NE
Purplish Copper	*Lycaena helloides*	Moist or disturbed areas	9	Scattered
Acadian Hairstreak	*Satyrium acadica*	Riparian areas, woodlands, prairies	2,7	Scattered
Edward's Hairstreak	*Satyrium edwardsii*	Woodlands, clearings, and areas of poor soil	3	Scattered
Hickory Hairstreak	*Satyrium caryaevorum*	Forest	1	Scattered
Striped Hairstreak	*Satyrium liparops*	Forest openings and edges, prairie streamside	3	Scattered
White M Hairstreak	*Parrhasius m-album*	Woodland, savannah	3	Scattered w/in SE 1/2
Reakirt's Blue	*Echinargus (Hemiargus) isola*	Native prairie	6	Scattered
Silvery Blue	*Glaucopsyche lygdamus*	Prairie, open fields and woodland openings	3,6	N 1/2
Melissa Blue	*Plebejus (Lycaeides) melissa*	Xeric prairie and gravel ridges	6	Scattered
Aphrodite fritillary	*Speyeria aphrodite*	High quality prairie, wetland and fen habitat	6,7	Scattered w/in N 1/2
Regal Fritillary	*Speyeria idalia*	Prairie & open grassland	6,9	Statewide
Baltimore Checkerspot	*Euphydryas phaeton*	Wetlands, fens, bogs	7	E 1/2
Ozark Baltimore Checkerspot	*Euphydryas phaeton ozarkae*	Wetlands, fens, bogs, woodlands	7	SE corner
Compton Tortoiseshell	*Nymphalis vaualbum (l-album)*	Large tracts of forest	1	Scattered w/in NE 1/4
Common Ringlet	*Coenonympha tullia*	Prairie and marsh edge, road ditches	6,7	NW 1/8
Hayhurst's scallopwing	*Staphylus hayhurstii*	Floodplain forests, Loess Hills forests	2,3,8	Scattered w/in S 1/2
Dreamy Duskywing	*Erynnis icelus*	Woodland or edge	3,8	NE 1/8
Sleepy Duskywing	*Erynnis brizo*	Oak barrens sand or shale soils	*	Scattered

Common Name	Scientific Name	Habitat Preference	Habitat Class	Iowa Distribution
Mottled Duskywing	*Erynnis martialis*	Xeric prairie	6	Scattered
Columbine Duskywing	*Erynnis lucilius*	Rocky wooded ravines	1,3	E 1/2
Wild Indigo duskywing	*Erynnis baptisiae*	Roadsides, prairie	6,9	Scattered
Powesheik Skipperling	*Oarisma powesheik*	High quality tallgrass prairie	6	N only
Ottoe Skipper	*Hesperia ottoe*	Mid and tall grass prairie of high quality	6	Loess hills and NE
Leonardus Skipper	*Hesperia leonardus*	Open grassy areas	6,9	SW
Dakota Skipper	*Hesperia dacotae*	Prairie	6	Dickinson Co.
Arogos Skipper	*Atrytone arogos*	Prairies and grasslands	6,9	W 1/2
Byssus Skipper	*Problema byssus*	Tallgrass prairie	6	Scattered
Mulberry Wing	*Poanes massasoit*	Wetlands fens	7	NW 1/4
Zabulon Skipper	*Poanes zabulon*	Riparian, oldfield, and woodland edges	3,9	SE 1/4
Broad-winged Skipper	*Poanes viator*	Wetlands fens	7	N 1/2
Dion Skipper	*Euphyes dion*	Sedge wetlands	7	Scattered
Two-spotted Skipper	*Euphyes bimacula*	Sedge meadows & marshes	7	Scattered
Dusted Skipper	*Atrytonopsis hianna*	Bluestem grasslands & oldfields	6,9	Scattered
Pepper and Salt Skipper	*Amblyscirtes hegon*	Edge of woods & grass waterways	3,9	Scattered
Common Roadside-Skipper	*Amblyscirtes vialis*	High quality, xeric prairie	6	S 1/3, Loess Hills

Table 14-5. Habitat Preferences of SGCN - Land Snails

Habitat Class: 1 = Forest, 2 = Wet Forest/Woodland, 3 = Woodland, 4 = Shrubland, 5 = Wet Shrubland, 6 = Warm Season Herbaceous, 7 = Herbaceous Wetland, 8 = savanna, 9 = Agricultural Land

Common Name	Scientific Name	Habitat Preference	Habitat Class	Iowa Distribution
Iowa Pleistocene Snail	*Discus macclintocki*	Algific slopes	1	NE
Frigid Ambersnail	*Catinella gelida*	Algific slopes	1	NE
Minnesota Pleistocene Succinea	*Novasuccinea n. sp. minnesota a*	Maderate cliffs	1	NE
Iowa Pleistocene Succinea	*Novasuccinea n. sp. Minnesota b*	Maderate cliffs	1	NE
Briarton Pleistocene Snail	*Vertigo brierensis*	Algific slopes	1	NE
Hubricht's Vertigo	*Vertigo hubrichti*	Algific slopes	1	NE
Iowa Pleistocene Vertigo	*Vertigo iowaensis*	Algific slopes	1	NE
Bluff Vertigo	*Vertigo meramecensis*	Limestone or dolomite cliffs & outcrops	1	NE

14-2: Semi-aquatic Wildlife

Table 14-6. Habitat Preferences of SGCN - Reptiles and Amphibians

Habitat Class (terrestrial): 1 = Forest, 2 = Wet Forest/Woodland, 3 = Woodland, 4 = Shrubland, 5 = Wet Shrubland, 6 = Warm Season Herbaceous, 7 = Herbaceous Wetland, 8 = savanna, 9 = Agricultural Land
Habitat Class (aquatic): 1A = River, 2A = Stream, 3A = Creek, 4A = Impoundment, 5A = Backwater, 5B = Oxbow, 6A = Lake, 7A = Pond

Common Name	Scientific Name	Habitat Preference	Habitat Class	Distribution
Mudpuppy	*Necturus maculosus*	Clean rivers, streams, lakes, reservoirs	1A,2A,4A, 6A	E
Central Newt	*Notophthalmus viridescens*	Vegetated woodland ponds, roadside flooded ditches & adjacent habitat	2,3,7	E, SE
Tiger Salamander	*Ambystoma tigrinum*	Generalist	1,2,3,4,5,6,7 8,9, 4A, 5B, 6A, 7A	Statewide
Smallmouth Salamander	*Ambystoma texanum*	Woodland pools and open woods	2,3,7	S
Blue-spotted Salamander	*Ambystoma laterale*	Woodland pools & open woods	2,3	NE
Crawfish Frog	*Lithobates areolata*	Prairie marshes, ponds and river floodplains	2,6,7,9,7A	SE
Cricket Frog	*Acris crepitans*	Shallow wetlands and streams	1A,2A,3A,5A ,6A,7A,7	Statewide
Great Plains Toad	*Anaxyrus cognatus*	Prairie, nonnative grassland	6,9	W
Plains Spadefoot	*Spea bombifrons*	Loess Hills	6	W
Ornate Box Turtle	*Terrapene ornata*	Sand/loess prairie, savanna	6,8,9	E,SW
Blanding's Turtle	*Emydoidea blandingii*	Shallow well vegetated wetlands	5A,7A,7	E, N Central
Wood Turtle	*Clemmys insculpta*	Floodplain forest, rivers	1A,2	N,N Central
Yellow Mud Turtle	*Kinosternon flavescens*	Shallow, ephemeral pools adjacent nearly pure sand soils.	5A,6,7	SE
Common Musk Turtle	*Sternotherus odoratus*	Backwaters and spring fed ponds adjacent to sandy uplands	2A,5A,7A,7	E
Smooth Softshell Turtle	*Apalone mutica*	Boundary rivers, large rivers in southern Iowa	1A, 5A	S
Slender Glass Lizard	*Ophisaurus attenuatus*	Prairie, pastures, forest edge, savanna	3,6,8,9	S
Six-lined Racerunner	*Cnemidophorus sexlineatus*	Sand/loess prairie, savanna	6,8,9	E,SW

Common Name	Scientific Name	Habitat Preference	Habitat Class	Distribution
Northern Prairie Skink	*Eumeces septentrionalis*	Sandy/loess prairie-forest edge, wetland edge	5,6,7	W,NE
Great Plains Skink	*Eumeces obsoletus*	Rocky/loess prairie and forest edge	6	SW
Diamondback Watersnake	*Nerodia rhombifer*	Quiet pools and backwater sloughs	5A	SE
Copperbelly Watersnake	*Nerodia erythrogaster neglecta*	Backwater sloughs, Forested wetland	2,5A	SE
Smooth Earthsnake	*Virginia valeriae*	Rocky woodland	3	S
Western Wormsnake	*Carphophis amoenus*	Rocky woodlands	3	S
Smooth Green Snake	*Opheodrys vernalis*	Old field, savanna, wet prairie and marsh	5,6,7,8	E 3/4
Prairie Kingsnake	*Lampropeltis calligaster*	Woodland edge, open woodland, grassland, savanna	3,6,8,9	S
Speckled Kingsnake	*Lampropeltis getula holbrooki*	Prairie, woodland edge, savanna	3,6,8	S
Bullsnake	*Pituophis catenifer sayi*	Prairie, deciduous woodland edge, savanna	3,6,8,9	Statewide
Western Hog-nosed Snake	*Heterodon nasicus*	Sand/loess prairie	6	SE, NW
Eastern Massasauga Rattlesnake	*Sistrurus catenatus catenatus*	Early successional wetland and upland grassland	5,6,7,9	E,S
Timber Rattlesnake	*Crotalus horridus*	Forested areas near rock outcrops, woodland, hill prairie	1,3,6	E,S
Prairie Rattlesnake	*Crotalus viridis*	Prairie	6	NW
Copperhead	*Agkistrodon contortrix*	Forested, rocky hillsides	1	SE

Table 14-7. Habitat Preferences of SGCN - Dragonflies and Damselflies

Habitat Class: 1A = River, 2A = Stream, 3A = Creek, 4A = Impoundment, 5A = Backwater, 5B = Oxbow, 6A = Lake, 7A = Pond

Common Name	Scientific Name	Habitat Preference	Habitat Class	Distribution
Canada Darner	*Aeshna canadensis*	marshes, pond edges	7A,7	northeast one-fourth
Variable Darner	*Aeshna interrupta*	lakes, ponds, streams	2A,6A, 7A	northwest one-fourth
Green-striped Darner	*Aeshna verticalis*	marshes, pond edges	7A,7	east one-fourth
Blue-eyed Darner	*Rhionaeshna multicolor*	small lakes, ponds	6A,7A	west one-third
Cyrano Darner	*Nasiaeschna pentacantha*	shaded creeks, lakes, oxbows	3A,5A, 6A	southeast one-fourth
Sulphur-tipped Clubtail	*Gomphus militaris*	artificial ponds, lakes	6A,7A	south and west
Rapids Clubtail	*Gomphus quadricolor*	rocky creeks	3A	Fayette County
Brimstone Clubtail	*Stylurus intricatus*	sandy streams	2A	west one-fourth
Rusty Snaketail	*Ophiogomphus rupinsulensis*	sandy, rocky creeks	3A	northeast one-fourth
Sioux Snaketail	*Ophiogomphus smithi*	sand bottomed streams	2A	northeast one-fourth
Royal River Cruiser	*Macromia taeniolata*	lakes, rivers	1A,6A	eastern border
Smoky Shadowdragon	*Neurocordulia molesta*	large rivers	1A	statewide large rivers
Stygian Shadowdragon	*Neurocordulia yamaskanensis*	Mississippi River	1A	extreme northeast
Mocha Emerald	*Somatochlora linearis*	wooded edges	2A	Wayne and Madison Cos.
Spangled Skimmer	*Libellula cyanea*	artificial ponds, lakes	6A,7A	southern border
Slaty Skimmer	*Libellula incesta*	old river oxbow	5A	Wayne County
Four-spotted Skimmer	*Libellula quadrimaculata*	marshes, wooded ponds	7A,7	north one-half
Blue-faced Meadowhawk	*Sympetrum ambiguum*	temporary pools, oxbows	5A	southeast one-fourth
Carolina Saddlebags	*Tramea carolina*	marsh	7	Mahaska County
Spotted Spreadwing	*Lestes congener*	edges pools, marshes	5A,7	statewide
Sweetflag Spreadwing	*Lestes forcipatus*	marshes, pond edges	7A,7	northeast one-third
Elegant Spreadwing	*Lestes inaequalis*	ponds	7A	northeast corner
Paiute Dancer	*Argia alberta*	small streams, road ditches	2A	west one-third
Emma's Dancer	*Argia emma*	small streams	2A	Crawford County
Prairie Bluet	*Coenagrion angulatum*	lakes, ponds	6A,7A	west one-third
Boreal Bluet	*Enallagma boreale*	marsh	7	north one-third

Common Name	Scientific Name	Habitat Preference	Habitat Class	Distribution
Alkali Bluet	*Enallagma clausum*	Pond edges without vegetation	7A	northwest one-fourth
Vesper Bluet	*Enallagma vesperum*	deep lakes, ponds	6A,7A	southwest one-half

14-3. Aquatic Wildlife

Table 14-8. Habitat Preferences of SGCN - Fish

Water Type: C = creek, S = stream, R = river, B = backwater, P =pond, L= lake, I = impoundment (S = small, M = medium, L= large)
Substrate: M = muck, I = silt, S = sand, C = cobble, G = gravel, R = rock, B = bedrock
Flow: N = none, S = slow, M = moderate, F = fast
Habitat Class: 1A = River, 2A = Stream, 3A = Creek, 4A = Impoundment, 5A = Backwater, 5B = Oxbow, 6A = Lake, 7A = Pond

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Water Type	Substrate	Flow
Chestnut lamprey	*Ichthyomyzon castaneus*	Miss. River Chariton River	1A	MR, LR		
Northern brook lamprey	*Ichthyomyzon fossor*	NE 1/4	3A	S	M	M, F
Silver lamprey	*Ichthyomyzon unicuspis*	Miss. River	1A,4A, 6A	L, I, LR		
American brook lamprey	*Lampetra appendix*	NE 1/4	1A,3A	C, SR, MR		
Lake sturgeon	*Acipenser fulvescens*	Miss. River	1A,6A	LR, LL	S, G, R	
Pallid sturgeon	*Scaphirhynchus albus*	Mo. River	1A	LR; turbid	G, S	F
Shovelnose sturgeon	*Scaphirhynchus platorynchus*	Miss. Mo. Rivers	1A	LR; turbid		
Paddlefish	*Polyodon spathula*	Miss. Mo. DM, Cedar, Iowa, Skunk Rivers	1A,4A, 5A	MR, LR, B, I		S
Spotted gar	*Lepisosteus oculatus*	Miss. River	1A	MR, LR		M
Longnose gar	*Lepisosteus osseus*	Miss. Mo. and larger tributaries	4A,5A, 6A	L, I, B; veg		
Bowfin	*Amia calva*	Miss. River	5A,6A	B, L		
Goldeye	*Hiodon alosoides*	Mo. large streams in W, S and SE	1A,5A, 6A	MR,LR, B,L		
American eel	*Anguilla rostrata*	Miss. Mo. and larger tributaries	2A,6A	LS, L		
Skipjack herring	*Alosa chrysochloris*	Miss. & Mo. Rivers	1A,4A	MR, LR, LI	S, G	
Largescale stoneroller	*Campostoma oligolepis*	NE 1/3	2A	MS, LS; clear	G	
Gravel chub	*Erimystax x-punctatus*	N 1/2	1A,3A	LC, R	G	
Western silvery minnow	*Hybognathus argyritis*	Mo. drainage	5A	B	S, M	
Mississippi silvery minnow	*Hybognathus nuchalis*	E Miss. drainage	5A	B		S
Plains minnow	*Hybognathus placitus*	Mo. drainage	1A,2A	S, R	I	S
Pallid shiner	*Hybopsis amnis*	Upper. Miss.	1A	MR, LR	S, M	

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Water Type	Substrate	Flow
Redfin shiner	*Lythrurus umbratilis*	NE 1/4	1A,2A,3A			
Shoal chub	*Macrhybopsis hyostomus*	Large interior rivers statewide	1A	R	S, C	M, F
Sturgeon chub	*Macrhybopsis gelida*	E 1/2, Mo. River	1A	Warm, turbid		
Sicklefin chub	*Macrhybopsis meeki*	Mo. River	1A	LR; turbid	G, S	
Pearl dace	*Margariscus margarita*	Worth Co.	6A,7A	P, SL	S, G	
Pugnose shiner	*Notropis anogenus*	W. Lake Okoboji	6A	L; clear, veg	I, S, G	
Ghost shiner	*Notropis buchanani*	Miss. River	1A,3A	LC, SR, MR		S
Ironcolor shiner	*Notropis chalybaeus*	Cedar River	1A	S, R	S	S
Blackchin shiner	*Notropis heterodon*	W. Lake Okoboji	6A, 2A	L, S	S, G	
Blacknose shiner	*Notropis heterolepis*	NW	1A,3A,6A	C, SR, L; cool	S	
Spottail shiner	*Notropis hudsonius*	Natural lakes, Miss.	1A,6A	LR, L	S, R	
Ozark minnow	*Notropis nubilus*	NE 1/4	1A,3A	C, SR, MR	G, R	F
Silverband shiner	*Notropis shumardi*	Miss & Mo. (?) River	1A	LR; turbid	I, S, G	M, F
Weed shiner	*Notropis texanus*	Cedar and Miss. Rivers	1A,3A	C, SR, MR	S	
Topeka shiner	*Notropis topeka*	DM, Boone, Raccoon, Rock drainages	1A,3A, 5A	B ,C ,S R; clear		S
Pugnose minnow	*Opsopoeodus emiliae*	Miss. River	1A,2A, 4A	L ,I ,S; veg		S
Southern redbelly dace	*Phoxinus erythrogaster*	NE 1/3, NW 1/4				
Flathead chub	*Platygobio gracilis*	Mo. drainage	1A	R; turbid		
Longnose dace	*Rhinichthys cataractae*	NE corner	1A	SR, MR; clear	G, R	F
Blue sucker	*Cycleptus elongatus*	Miss. Mo. and large tributaries	1A	LR		
Black buffalo	*Ictiobus niger*	Miss. and large tributaries	1A,4A, 5A	B, R, I		
Spotted sucker	*Minytrema melanops*	Miss. River	1A	SR, MR	firm	S
River redhorse	*Moxostoma carinatum*	Upper pools of Miss.	1A,3A,	LC, R; clear		
Black redhorse	*Moxostoma duquesnei*	Turkey, Upper Iowa, Cedar, Wapsi drainages	1A,3A	C, SR, MR	G, R	
Greater redhorse	*Moxostoma valenciennesi*	Upper Miss. River	1A	MR, LR	no silt	M, F

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Water Type	Substrate	Flow
Brown bullhead	*Ameiurus nebulosus*	N 1/3	2A,4A,5A ,6A,7A	P, L, B, I, S		S
Blue catfish	*Ictalurus furcatus*	Lower Miss and Mo. Rivers	1A, 5A			
Slender madtom	*Noturus exilis*	Miss. River tributaries	1A,2A	MS, LS, SR, MR		M, F
Tadpole madtom	*Noturus gyrinus*	Statewide	1A,3A,4A ,5A,6A	L, I, B, C, R; veg	M	S
Freckled madtom	*Noturus nocturnus*	Miss. drainage	1A,3A	C, R		L, M
Grass (redfin) pickerel	*Esox americanus*	Miss. River and tributaries	5A,6A,7A	B, P, SL; veg		S
Central mudminnow	*Umbra limi*	N 1/3	2A, 5A	S, B; veg		S
Brook Trout	*Salvelinus fontinalis*	NE corner	1A,3A	C ,S ,S R, cool	S,G,C,R	M, F
Trout perch	*Percopsis omiscomaycus*	NW 1/4, Miss., Grand Chariton Rivers	1A, 2A	S, R	S	
Pirate perch	*Aphredoderus sayanus*	Miss. and large tributaries	5A,6A,7A	L, P, B; veg		
Burbot	*Lota lota*	Mo.& Miss. Rivers/Miss. tributaries	1A,6A	L ,L R; deep, cold		
Banded killifish	*Fundulus diaphanus*	Natural lakes in NW, Mo. River	2A,6A,7A	L, P, S		S
Starhead topminnow	*Fundulus dispar*	L. Sioux/Iowa Rivers	3A,5A,5B	C, B	M	N
Blackstripe topminnow	*Fundulus notatus*	E 1/3	2A,5A	S, B; turbid		
Plains topminnow	*Fundulus sciadicus*	Rock River Basin	5A	C, S, B		M
Mottled sculpin	*Cottus bairdi*	Lower Bear Creek	2A,3A	C, SR; clear, cool	S, G, R	
Slimy sculpin	*Cottus cognatus*	NE corner	2A	S; cold	R	F
Western sand darter	*Ammocrypta clara*	Miss. River	1A	MR, LR	S	S, M
Crystal darter	*Crystallaria asprella*	Miss., Turkey Rivers	1A	SR, MR	S, G	F
Mud darter	*Etheostoma asprigene*	Miss. River & tributaries	1A,5A	B, R	S, M	S
Bluntnose darter	*Etheostoma chlorosomum*	Miss. River	1A, 3A, 5A	SR, MR, C, B	S, M	S
Iowa darter	*Etheostoma exile*	Northern 1/2	3A, 6A, 7A	C, P, L, cool	M, S	N, S
Least darter	*Etheostoma microperca*	Maquoketa, trib. to Otter Creek	3A	C; veg		S

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Water Type	Substrate	Flow
Orangethroat darter	*Etheostoma spectabile*	SE 1/4	1A,3A	C, SR	S, C, G, B	M, F
Banded darter	*Etheostoma zonale*	NE 1/4	1A,3A	R, LC	C, G	M
Northern logperch	*Percina caprodes*	Miss. drainage, Clear Lake	1A,2A,3A ,4A,6A	C, S, R, L, I	S, G	M, F
Blackside darter	*Percina maculata*	N 2/3	1A,3A	C, SR, MR	S, G	S
Slenderhead darter	*Percina phoxocephala*	Miss. drainage	1A,3A	C, SR, MR	C, G, B	M, F
River darter	*Percina shumardi*	Miss. River	1A	LR	G, R	F

Table 14-9. Habitat Preferences of SGCN - Mussels

Water: C = creek, S = stream, R = river, B = backwater, P = pond, L = lake,
I = impoundment (S = small, M = medium, L = large)
Substrate: M = muck, I = silt, S = sand, C = cobble, G = gravel, R = rock, B = bedrock
Flow: N = none, S = slow, M = moderate, F = fast
Habitat Class: 1A = River, 2A = Stream, 3A = Creek, 4A = Impoundment, 5A = Backwater, 5B = Oxbow, 6A = Lake, 7A = Pond

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Water	Substrate	Flow
Elktoe	*Alasmidonta marginata*	NE 3/4	2A	MS	S, G	M
Slippershell	*Alasmidonta viridis*	E	2A,3A	C, S	S, M	
Flat floater	*Anodonta suborbiculata*	Miss. Riv.	1A,6A,7A	P, L, R	M, I	N, S
Cylinder (Cylindrical papershell)	*Anodontoides ferussacianus*	N Central	3A	SC	S, M	
Rock pocketbook	*Arcidens confragosus*	Miss. Riv.	1A	MR, LR	S, M	
Spectacle case	*Cumberlandia monodonta*	Miss. Riv.	1A	LR	S, M	F
Purple pimpleback (wartyback)	*Cyclonaias tuberculata*	SE	1A	MR, LR	G	
Butterfly	*Ellipsaria lineolata*	Miss. & Cedar Rivs.	1A	LR	S, G	
Spike	*Elliptio dilatata*	NE 3/4	2A,6A	S, L	S, G; firm	
Ebonyshell	*Fusconaia ebena*	Miss. Riv.	1A	LR; deep	S, G	
Ozark pigtoe	*Fusconaia ozarkensis*					
Higgins' eye pearlymussel	*Lampsilis higginsi*	Miss. Riv. & Tributaries	1A	LR	S, G	
Yellow sandshell	*Lampsilis teres anodontoides*	NE 2/3	1A	MR, LR	S, G	
Slough sandshell	*Lampsilis teres teres*	NE 2/3	1A,5A	R, B	M	S
Creek heelsplitter	*Lasmigona compressa*	NE 2/3	2A,3A	C, S	S, G	
Fluted shell	*Lasmigona costata*	NE 3/4	1A	MR, LR	S, G, M	
Pondmussel	*Ligumia subrostrata*	DM & Iowa Rivers	3A,7A	SC, P	S, M	
Hickorynut	*Obovaria olivaria*	Miss. Riv.	1A	LR	S, G	
Bullhead (Sheepnose)	*Plethobasus cyphyus*	Miss. & DM Rivers	1A	MR, LR	S, G	
Round pigtoe	*Pleurobema sintoxia*	NE 3/4	1A,2A	S, R	S, G; firm	
Monkeyface	*Quadrula metanevra*	E 2/3	1A	MR, LR	G	
Wartyback	*Quadrula nodulata*	Miss. Riv.	1A	LR	S, G	
Strange floater (Creeper, formerly Squawfoot)	*Strophitus undulatus*	NE 3/4	2A	SS, MS	S, G, M	
Lilliput	*Toxolasma parvus*	NE 2/3	1A,3A,6A,7A	P, L, C, R	S, G, M	

Common Name	Scientific Name	Iowa Distribution	Habitat Class	Water	Substrate	Flow
Pistolgrip	*Tritogonia verrucosa*	Miss., Iowa, DM Rivers	1A	MR, LR	S,G,M	
Fawnsfoot	*Truncilla donaciformis*	E	1A	MR, LR	S, G	
Pondhorn	*Uniomerus tetralasmus*	S Central	1A,2A,3A,7A	P,C.S,R	M,S	
Paper pondshell	*Utterbackia imbecillis*	NE 3/4	1A,6A,7A,4A	P, L, I, R	M	S
Ellipse	*Venustaconcha ellipsiformis*	E 2/3	2A	SS, MS	S, G	

APPENDIX 15. SGCN GROUPED BY HABITAT CLASS

15-1. Terrestrial Habitat Classes

Table 15-1. Habitat Preferences of SGCN - Forest Habitat

Group	Common Name	Comments
Birds		
1	Ruffed Grouse	Prefers large forests or woodlands containing areas of high stem density
2	Bald Eagle	Prefers riparian forest
3	Red-shouldered Hawk	Prefers riparian forest
4	Broad-winged Hawk	Large contiguous forest
5	Peregrine Falcon	Nests in rocky cliffs along major rivers
6	American Woodcock	Prefers moist brushy woodlands w/openings
7	Yellow-billed Cuckoo	Prefers woodland thickets w/4' to 8' shrubs
8	Black-billed Cuckoo	Prefers woodland thickets w/2' to 6' shrubs
9	Whip-poor-will	Prefers ungrazed forest w/open understory
10	Olive-sided Flycatcher	Breeds in coniferous forest, feeds along forest openings and edges
11	Acadian Flycatcher	Prefers riparian areas of large unfragmented forests
12	Least Flycatcher	Prefers mature hardwoods, but frequents openings
13	Brown Creeper	Prefers riparian forest
14	Veery	Prefers moist forests w/low tree & shrub understory
15	Wood Thrush	Prefers mature, moist forest w/closed canopy
16	Blue-winged Warbler	Uses overgrown brushy areas in forest clearings
17	Golden-winged Warbler	Prefers woodland openings w/brush and grass
18	Canada Warbler	Prefers mature forest w/shrubby undergrowth
19	Cerulean Warbler	Prefers large, mature, unfragmented forest
20	Prothonotary Warbler	Prefers swampy, mature riparian forest
21	Worm-eating Warbler	Prefers large, unfragmented forests w/shrub understory
22	Black-and-white Warbler	Prefers large, mature, unfragmented forests
23	Louisiana Waterthrush	Prefers large, mature forests w/permanent streams
24	Kentucky Warbler	Prefers riparian, ravine areas within forest understory
25	Hooded Warbler	Prefers large, mature, unfragmented forests

Mammals		
1	Elliot's Short-tailed Shrew	
2	Hayden's Shrew	Riparian areas
3	Northern Myotis	
4	Indiana Bat	Riparian areas
5	Evening Bat	Riparian areas
6	Gray Fox	Moderate to mature, diverse, mixed forest
7	Bobcat	
8	Spotted Skunk	
9	Red Squirrel	
10	Red-backed Vole	
11	Woodland Vole	
Reptiles and Amphibians		
1	Tiger Salamander	
2	Timber Rattlesnake	Deciduous forest with limestone outcrops
3	Copperhead	Rocky forested hillsides
Butterflies		
1	Pipevine Swallowtail	
2	Hickory Hairstreak	
3	White M Hairstreak	Oak is larval hostplant
4	Ozark Baltimore Checkerspot	
5	Compton Tortoiseshell	Large areas of mature forest
6	Columbine Duskywing	Rocky wooded ravines
Land Snails		
1	Iowa Pleistocene snail	Algific slopes
2	Frigid ambershell	Algific slopes
3	Minnesota Pleistocene snail	Maderate cliffs
4	Iowa Pleistocene succinea	Maderate cliffs
5	Briarton Pleistocene snail	Algific slopes
6	Hubricht's vertigo	Algific slopes
7	Iowa Pleistocene vertigo	Algific slopes
8	Bluff vertigo	Limestone and dolomite cliffs and outcrops

Table 15-2. Habitat Preferences of SGCN - Wet Forest/Woodlands Habitat

Group	Common Name	Comments
Birds		
1	Yellow-crowned Night-Heron	Prefers mature lowland woods
2	Osprey	Prefers riparian areas
3	Bald Eagle	Prefers riparian areas
4	Red-shouldered Hawk	Prefers riparian areas
5	Peregrine Falcon	Nests in rocky cliffs along major rivers
6	American Woodcock	Prefers damp, brushy woods w/grassy openings
7	Black-billed Cuckoo	Prefers woodland thickets w/2' to 6' shrubs
8	Long-eared Owl	Mixed conifer/deciduous woodland
9	Red-headed Woodpecker	Riparian woodland w/snags
10	Acadian Flycatcher	Prefers riparian areas of large, unfragmented forests
11	Brown Creeper	Depend on extensive forests w/standing dead trees
12	Veery	Prefers moist forests w/low tree & shrub understory
13	Wood Thrush	Prefers mature, moist forest w/closed canopy
14	Cerulean Warbler	Prefers large, mature, unfragmented forest
15	Pronothonotary Warbler	Prefers swampy, mature riparian forest
16	Louisiana Waterthrush	Prefers large, mature forests w/permanent streams
17	Kentucky Warbler	Prefers riparian, ravine areas within forest understory
18	Rusty Blackbird	Prefers riparian areas
Mammals		
1	Hayden's Shrew	Riparian areas
2	Least Shrew	Riparian areas
3	Evening Bat	Riparian areas
4	Gray Fox	Moderate to mature, diverse, mixed forest
Reptiles and Amphibians		
1	Tiger Salamander	
2	Blue-spotted Salamander	Woodland pools
3	Central Newt	Well vegetated woodland pools
4	Smallmouth Salamander	Woodland pools
5	Crawfish Frog	Floodplain forests
6	Wood Turtle	Riparian habitats
7	Copperbelly Watersnake	Open canopy
Butterflies		
1	Hayhurst's Scallopwing	sandy floodplain forests
Dragonflies/ Damselflies		
1	Blue-faced meadowhawk	

Table15-3. Habitat Preferences of SGCN - Woodland Habitat

Group	Common Name	Comments
Birds		
1	Bald Eagle	Riparian area
2	Red-shouldered Hawk	Riparian area
3	Swainson's Hawk	Savanna or open woodland
4	Ruffed Grouse	Prefers large forests or woodlands containing areas of high stem density
5	American Woodcock	Moist brushy woodlands
6	Black-billed Cuckoo	Woodland thickets w/2'-6' shrubs
7	Yellow-billed Cuckoo	Prefers woodland thickets w/4' to 8' shrubs
8	Long-eared Owl	Mixed conifer/deciduous woodland
9	Whip-poor-will	Prefers ungrazed forest
10	Red-headed Woodpecker	Prefers oak savanna w/snags
11	Least Flycatcher	Prefers mature hardwoods, but frequents openings
12	Bewick's Wren	Open woodlands & shrublands
13	Northern Mockingbird	Thickets of savanna or very open woodland
14	White-eyed Vireo	Woodland edge brushy habitat
15	Blue-winged Warbler	Uses overgrown brushy areas in forest clearings
16	Golden-winged Warbler	Prefers woodland openings w/brush and grass
17	Yellow-breasted Chat	Early successional woodland
Mammals		
1	Hayden's Shrew	Riparian areas
2	Elliot's Short-tailed Shrew	
3	Least Shrew	Riparian areas
4	Bobcat	
5	Gray Fox	Moderate to mature, diverse, mixed forest
Reptiles and Amphibians		
1	Central Newt	Vicinity of woodland pools
2	Tiger Salamander	
3	Blue-spotted Salamander	Vicinity of woodland pools
4	Smallmouth Salamander	Vicinity of woodland pools
5	Slender Glass Lizard	Dry, open woodland and woodland edge
6	Western Worm Snake	Rocky woodlands
7	Prairie Kingsnake	Open woodland and woodland edge
8	Speckled Kingsnake	Wooded hillsides, woodland edge
9	Bullsnake	Deciduous woodland edge
10	Smooth Earth Snake	Rocky, wooded deciduous hillsides; woodland edge
11	Timber Rattlesnake	Rocky, deciduous woodland
12	Smooth Softshell	

Group	Common Name	Comments
Butterflies		
1	Zebra Swallowtail	Riparian areas
2	Olympia Marble	Open woodlands
3	Edward's Hairstreak	Forest edge or clearings
4	Striped Hairstreak	Forest openings and edges
5	White M Hairstreak	Oak is larval hostplant
6	Silvery Blue	Open woodlands
7	Ozark Baltimore Checkerspot	
8	Compton Tortoiseshell	Large tracts, birch and aspen are larval hostplant
9	Hayhurst's Scallopwing	Wooded groves near sand prairie
10	Dreamy Duskywing	Woodland openings or edges
11	Columbine Duskywing	Rocky wooded ravines
12	Zabulon Skipper	Brushy openings
13	Pepper And Salt Skipper	Woodland edges
14	Common Roadside-Skipper	Limestone and sandstone glades

Table 15-4. Habitat Preferences of SGCN - Shrubland Habitat Class

Group	Common Name	Comments
Birds		
1	Northern Bobwhite	Combination of grassland, brush, open woods
2	Sharp-tailed Grouse	Prefer grassland w/some shrubs
3	Yellow-billed Cuckoo	Woodland thickets, 4' to 8' shrubs
4	Black-billed Cuckoo	Woodland thickets, esp. riparian
5	Loggerhead Shrike	Thorny shrublands of open country or savanna
6	White-eyed Vireo	Shrubby habitat beside woodland
7	Bell's Vireo	Prefers brushy, tangled habitat often in savannas
8	Bewick's Wren	Shrublands preferred near woodland
9	Northern Mockingbird	Shrublands of open country or savanna
10	Blue-winged Warbler	Wooded openings w/late succession and grasslands
11	Golden-winged Warbler	Shrubby grassland/woodland
12	Yellow-breasted Chat	Prefers dense overgrown, brushy pastures
13	Field Sparrow	Favors brushy successional habitat
Mammals		
1	Least Shrew	Riparian areas
2	Bobcat	
Reptiles and Amphibians		
1	Tiger Salamander	

Table 15-5. Habitat Preferences of SGCN - Wet Shrubland Habitat

Group	Common Name	Special Needs
Birds		
	Black-crowned Night-Heron	Wetlands ringed with shrubs
	Willow Flycatcher	Prefers willow thickets on wetland edges
	Bell's Vireo	Often shrubby riparian areas
	Rusty Blackbird	Shrubby wetlands
Reptiles and Amphibians		
	Tiger Salamander	
	Northern Prairie Skink	Open shrubland
	Smooth Greensnake	Open shrubland
	Eastern Massasauga Rattlesnake	Spring and fall

Table 15-6. Habitat Preferences of SGCN - Warm Season Herbaceous Habitat

Group	Common Name	Comments
Birds		
1	Northern Pintail	Nests in grassland
2	Northern Bobwhite	Prefers medium ht. grasslands w/shrubs & forbs
3	Sharp-tailed Grouse	Open prairie w/patches of trees or shrubs
4	Greater Prairie-Chicken	Prefers large grassland tracts +2,000 acres
5	Northern Harrier	Prefers large grassland tracts +100 acres
6	Yellow Rail	Wet meadows & fens w/sedges
7	Whooping Crane	Prefers large wetland complexes w/grasslands adjacent
8	Sandhill Crane	Prefers large wetland complexes w/grasslands adjacent
9	Upland Sandpiper	Prefers short-to-medium ht. grasslands w/forbs.
10	Wilson's Phalarope	Shallow marshes w/upland grass & forbs
11	Burrowing Owl	Prefers short height grasslands
12	Short-eared Owl	Prefers large grassland tracts +200 acres
13	Common Nighthawk	Grasslands w/bare areas for nesting
14	Sedge Wren	Prefers tall grass infrequently disturbed
15	Field Sparrow	Prefers old grassland fields w/shrubs
16	Grasshopper Sparrow	Prefers short grass w/forbs
17	Henslow's Sparrow	Prefers tall grass and infrequent disturbance; weedy
18	Le Conte's Sparrow	Prefers grassy meadows; marsh edges
19	Nelson's Sparrow	Prefers rank grasslands on wetland edge
20	Dickcissel	Prefers medium high grass w/sparse forbs
21	Bobolink	Prefers medium height grass w/forbs
22	Eastern Meadowlark	Prefers trees in grass landscape
Mammals		
1	Hayden's Shrew	Riparian areas
2	Elliot's Short-tailed Shrew	
3	White-tailed Jackrabbit	
4	Franklin's Ground Squirrel	
5	Plains Pocket Mouse	
6	Prairie Vole	
7	Plains Pocket Gopher	
8	Spotted Skunk	
9	Bobcat	
Reptiles and Amphibians		
1	Tiger Salamander	
2	Crawfish Frog	Vicinity of prairie marshes
3	Great Plains Toad	Mixed and short grass prairie
4	Plains Spadefoot	Burrows in prairie (outside breeding season)

Group	Common Name	Comments
5	Ornate Box Turtle	Sand prairie
6	Yellow Mud Turtle	Ephemeral wetlands in sand prairie
7	Slender Glass Lizard	Prairie with sandy or loose soil
8	Six-lined Racerunner	Sand prairie
9	Northern Prairie Skink	Prairie-forest edge
10	Great Plains Skink	Rocky mixed and short grass prairie; prairie-forest edge
11	Smooth Greensnake	Wet prairie; oldfield
12	Prairie Kingsnake	High quality prairie to oldfield
13	Speckled Kingsnake	Native prairie to oldfield
14	Bullsnake	Native prairie to oldfield
15	Western Hognose Snake	Sand prairie
16	Eastern Massasauga Rattlesnake	Wet prairie, upland grassland adjacent to wetland
17	Timber Rattlesnake	Hill prairie
18	Prairie Rattlesnake	Mixed and short grass prairie
Butterflies		
1	Olympia Marble	Prairies and grasslands
2	Reakirt's Blue	Native prairie
3	Melissa Blue	Xeric prairie in Loess Hills, gravel ridges
4	Aphrodite Fritillary	Native prairies, marshes and fens
5	Regal Fritillary	Prairie and open grasslands
6	Common Ringlet	Prairies and open grassy areas
7	Mottled Duskywing	Xeric prairie in Loess Hills, gravel ridges
8	Poweshiek Skipper	High quality prairie
9	Ottoe Skipper	Tallgrass prairie
10	Leonardus Skipper	Open grassy areas
11	Dakota Skipper	Tallgrass prairie
12	Arogos Skipper	Prairies and sand prairies
13	Byssus Skipper	Tallgrass prairie
14	Dusted Skipper	Bluestem grasslands and oldfields
15	Common Roadside-Skipper	Xeric prairie

Table 15-7. Habitat Preferences of SGCN - Herbaceous Wetlands Habitat

Group	Common name	Comments
Birds		
1	Trumpeter Swan	Large prairie marshes w/emergent vegetation
2	Northern Pintail	Prairie marshes w/upland vegetation
3	Canvasback	Bulrush & cattail prairie marsh
4	Redhead	Cattail & bullrush hemi-marshes
5	American White Pelican	Riparian areas w/islands
6	American Bittern	Large prairie marshes w/upland grassland
7	Least Bittern	Prairie marshes w/emergent vegetation
8	Black-crowned Night-Heron	Prairie marshes w/emergent veg. and/or shrubs/trees
9	Yellow-crowned Night-Heron	Wooded riparian areas w/sparse understory
10	Osprey	Lakes, reservoirs, rivers w/trees
11	Northern Harrier	Prairie/grasslands assoc. w/marshes
12	Yellow Rail	Wet meadows & fens w/sedges
13	King Rail	Sedge meadow zones of wetland edges
14	Common Gallinule	Prairie hemi-marshes
15	Sandhill Crane	Large wetland complex w/wet meadows/hayfields
16	Whooping Crane	Large wetland complex w/wet meadows/hay fields
17	American Golden-Plover	Mud flats, shallow wetlands
18	Piping Plover	Riparian open, sandy beaches & sandbars
19	American Avocet	Shallow wetlands, mud flats
20	Solitary Sandpiper	Muddy, shallow wetlands
21	Greater Yellowlegs	Shallow wetlands
22	Lesser Yellowlegs	Shallow wetlands
23	Hudsonian Godwit	Moderate vegetated shorelines of marsh
24	Marbled Godwit	Moderate vegetated shorelines of marsh
25	Stilt Sandpiper	Sheltered muddy wetland pools
26	Buff-breasted Sandpiper	Short-grass areas near water
27	Short-tailed Dowitcher	Mudflats & shallow ponds
28	Wilson's Phalarope	Shallow marshes w/upland grass & forbs
29	Least Tern	Open sandy beaches, sandbars of riparian areas
30	Black Tern	Large prairie marsh w/emergent vegetation
31	Forster’s Tern	Large prairie marsh w/emergent vegetation
32	Sedge Wren	Tall rank grassland ringing marsh
33	Le Conte’s Sparrow	Prefers grassy meadows; marsh edges
34	Nelson's Sparrow	Rank grasslands on wetland edge
35	Rusty Blackbird	Riparian areas w/trees or shrubs

Group	Common name	Comments
Mammals		
1	Southern Bog Lemming	
2	Spotted Skunk	
3	Plains Pocket Gopher	Wet meadows
Reptiles and Amphibians		
1	Tiger Salamander	
2	Central Newt	Well vegetated near woodland
3	Smallmouth Salamander	Near woodlands
4	Crawfish Frog	With abundant crayfish burrows
5	Cricket Frog	Mudflats near water
6	Plains Spadefoot	Ephemeral pools for breeding
7	Common Musk Turtle	Permanent, mud bottom
8	Yellow Mud Turtle	Ephemeral with sandy soil
9	Blanding's Turtle	Wet vegetated
10	Northern Prairie Skink	Wetland edge
11	Diamondback Watersnake	Riparian
12	Smooth Greensnake	Wetland edge
13	Eastern Massasauga Rattlesnake	Sedge meadow, open marsh edge
Butterflies		
1	Baltimore Checkerspot	Fens, wet meadows and marshes
2	Common Ringlet	
3	Mulberry Wing	Marshes and fens
4	Broad-winged Skipper	Marshes and fens
5	Dion Skipper	Wetlands with sedges
6	Two-spotted Skipper	Sedge meadows and marshes
Dragonflies and Damselflies		
1	Canada darner	
2	Green-striped darner	
3	Four-spotted skimmer	
4	Carolina saddlebags	
5	Spotted spreadwing	
6	Sweetflag spreadwing	
7	Boreal bluet	

Table15-8. Habitat Preferences of SGCN - Savanna Habitat

Group	Common Name	Comments
Birds		
1	Swainson's Hawk	Prefers savanna over woodland
2	Barn Owl	Prefers savanna over woodland
3	Long-eared Owl	Prefers areas of woodland-grassland interface
4	Red-headed Woodpecker	Oak savannas preferred
5	Loggerhead Shrike	Thorny shrubs/trees in savanna/grasslands
6	Bell's Vireo	Thickets in savanna/grasslands
7	Northern Mockingbird	Shrubby habitat in savanna or woodland edge
8	Eastern Meadowlark	Prefers savanna over open grasslands
Mammals		
1	Franklin's Ground Squirrel	
2	Spotted Skunk	
3	Plains Pocket Gopher	
4	Elliot’s Short-tailed Shrew	
5	Least Shrew	Riparian areas
Reptiles and Amphibians		
1	Tiger Salamander	
2	Six-lined Racerunner	Sandy soil
3	Slender Glass Lizard	Sandy or loose soil
4	Ornate Box Turtle	Sandy soil
5	Smooth Greensnake	Oak savanna
6	Speckled Kingsnake	Oak savanna
7	Prairie Kingsnake	Oak savanna
8	Bullsnake	Oak savanna
Butterflies		
1	Olympia Marble	
2	White M Hairstreak	
3	Aphrodite Fritillary	
4	Dreamy Duskywing	

Table 15-9. Habitat Preferences of SGCN - Agricultural Lands Habitat

Group	Common Name	Comments
Birds		
1	Northern Pintail	Nests in grassland
2	Northern Bobwhite	Prefers medium height grasslands w/shrubs & forbs
3	Sharp-tailed Grouse	Open prairie w/patches of trees or shrubs
4	Greater Prairie-Chicken	Prefers large grassland tracts +2,000 acres
5	Northern Harrier	Prefers large grassland tracts +100 acres
6	Yellow Rail	Wet meadows & fens w/sedges
7	Sandhill Crane	Prefers large wetland complexes w/grasslands adjacent
8	Whooping Crane	Prefers large wetland complexes w/grasslands adjacent
9	Upland Sandpiper	Prefers short-to-medium height grasslands w/forbs.
10	Buff-breasted Sandpiper	Short-grass areas near water
11	Wilson's Phalarope	Shallow marshes w/upland grass & forbs
12	Burrowing Owl	Prefers short height grasslands
13	Short-Eared Owl	Prefers large grassland tracts +200 acres
14	Common Nighthawk	Grasslands w/bare areas for nesting
15	Chimney Swift	Declining preference as more chimney availability is reduced
16	Sedge Wren	Prefers tall grass infrequently disturbed
17	Field Sparrow	Prefers old grassland fields w/shrubs
18	Grasshopper Sparrow	Prefers short grass w/forbs
19	Henslow's Sparrow	Prefers tall grass and infrequent disturbance; weedy
20	Le Conte's Sparrow	Prefers grassy meadows ;marsh edges
21	Nelson's Sparrow	Prefers rank grasslands on wetland edge
22	Dickcissel	Prefers medium high grass w/sparse forbs
23	Bobolink	Prefers medium height grass w/forbs
24	Eastern Meadowlark	Prefers trees in grass landscape
Mammals		
1	White-tailed Jackrabbit	
2	Franklin's Ground Squirrel	
3	Spotted Skunk	
4	Plains Pocket Gopher	Prefers alfalfa fields

Group	Common Name	Comments
Reptiles and Amphibians		
1	Tiger Salamander	
2	Crayfish Frog	Flooded fields
3	Great Plains Toad	Pasture
4	Plains Spadefoot	Ephemeral pools in ag fields
5	Ornate Box Turtle	Pasture and agricultural fields with sandy soil
6	Six-lined Racerunner	Sandy soil
7	Slender Glass Lizard	Pasture
8	Prairie Kingsnake	Hayfields and field edges
9	Bullsnake	Hayfields and pasture
10	Eastern Massasauga Rattlesnake	Grassed waterways, field edges
Butterflies		
1	Pipevine Swallowtail	Roadsides
2	Purplish Copper	Open fields
3	Acadian Hairstreak	Often riparian
4	Silvery Blue	Fields adjacent to woodlands
5	Regal Fritillary	Open grasslands
6	Wild Indigo Duskywing	Roadsides
7	Leonardus Skipper	Open grassy areas
8	Arogos Skipper	
9	Zabulon Skipper	
10	Dusted Skipper	Oldfields
11	Pepper-and-salt Skipper	Grassy waterways

15-2. Aquatic Habitat Classes

Species utilization of aquatic habitat sub-classes as used in other sections of this Plan are combined under major Class headings to simplify the grouping process.

Table 5-10. Habitat Preferences of SGCN - River Habitat

Group	Common Name	Comments
Fish		
1	Chestnut lamprey	
2	American brook lamprey	
3	Silver lamprey	
4	Lake sturgeon	Sand, cobble and rock substrate
5	Palid sturgeon	Turbid waters with sand and gravel substrate
6	Shovelnose sturgeon	Turbid waters
7	Paddlefish	
8	Spotted gar	
9	Skipjack herring	Sand and gravel substrate
10	Gravel chub	Gravel substrate
11	Plains minnow	Silt bottom
12	Pallid shiner	Sand and muck bottom
13	Redfin shiner	
14	Shoal chub	Sand and silt substrate
15	Sicklefin chub	Turbid water with sand and gravel substrate
16	Ghost shiner	
17	Ironcolor shiner	Slow, low gradient, clear and vegetated rivers
18	Blacknose shiner	Cool vegetated waters with sand bottom
19	Spottail shiner	Sand and rock substrate
20	Ozark minnow	Gravel and rock substrate
21	Silverband shiner	Open channels/swift currents, tolerates silt
22	Weed shiner	Sand substrate
23	Topeka shiner	Clear waters
24	Pugnose minnow	Clear vegetated waters with silt, sand and gravel substrate
25	Longnose dace	Clear waters with gravel and rock substrate
26	Blue sucker	
27	Spotted sucker	Firm substrate
28	River redhorse	No silt
29	Black redhorse	Gravel and rock substrate
30	Greater redhorse	
31	Blue catfish	
32	Slender madtom	
33	Tadpole madtom	Muck substrate
34	Freckled madtom	
35	Brook trout	Cool waters
36	Trout perch	Sand substrate
37	Burbot	
38	Western sand darter	Sand substrate

Group	Common Name	Comments
39	Crystal darter	Sand and gravel substrate
40	Mud darter	Sand and muck substrate
41	Bluntnose darter	Sand, muck substrate
42	Orangthroat darter	Sand, cobble, gravel and bedrock substrate
43	Banded darter	Cobble and gravel substrate
44	Northern logperch	Sand and gravel substrate
45	Blackside darter	Sand and gravel substrate
46	Slenderhead darter	Cobble, gravel and bedrock substrate
47	River darter	Gravel and rock substrate
Reptiles and Amphibians		
1	Mudpuppy	Clean rivers
2	Cricket Frog	Mud banks
3	Wood Turtle	With adjacent floodplain forest
4	Smooth Softshell	
Mussels		
1	Flat floater	Mud and silt substrate
2	Rock pocketbook	Mud and sand substrate
3	Spectacle case	Mud and sand substrate
4	Purple pimpleback	Gravel substrate
5	Butterfly	Sand and gravel substrate
6	Ebonyshell	Sand and gravel substrate
7	Higgins' eye pearlymussel	Sand and gravel substrate
8	Yellow sandshell	Sand and gravel substrate
9	Slough sandshell	Mud substrate
10	Fluted sandshell	Mud sand and gravel substrate
11	Hickorynut	Sand and gravel substrate
12	Bullhead	Sand and gravel substrate
13	Round pigtoe	Firm sand and gravel substrate
14	Monkeyface	Gravel substrate
15	Wartyback	Sand and gravel substrate
16	Lilliput	Mud, sand and gravel substrate
17	Pistolgrip	Mud, sand and gravel substrate
18	Fawnsfoot	Sand and gravel substrate
19	Pond papershell	Mud substrate
Dragonflies and Damselflies		
1	Royal river cruiser	
2	Smoky shadowdragon	
3	Stygian shadowdragon	

Table 15-11. Habitat Preferences of SGCN - Stream Habitat

Group	Common Name	Comments
Fish		
1	Northern brook lamprey	
2	American eel	
3	Largescale stoneroller	Gravel substrate
4	Plains minnow	
5	Ironcolor shiner	Clear, sluggish, vegetated streams
6	Blackchin shiner	Clear, well-vegetated streams
7	Pugnose minnow	
8	Southern redbelly dace	
9	Brown bullhead	
10	Slender madtom	
11	Central mudminnow	
12	Trout perch	
13	Banded killifish	
14	Blackstripe topminnow	
15	Mottled sculpin	
16	Slimy sculpin	Rock substrate
17	Northern logperch	
Reptiles and Amphibians		
1	Mudpuppy	Permanent with gravel bottoms
2	Cricket Frog	Mud banks
3	Common Musk Turtle	Slow moving, mud bottom
4	Smooth Softshell	
Dragonflies and Damselflies		
1	Variable darner	
2	Brimstone clubtail	
3	Sioux snaketail	
4	Paiute dancer	
5	Emma's dancer	
Mussels		
1	Elktoe	Sand and gravel substrate
2	Slippershell	Mud and sand substrate
3	Spike	Firm sand and gravel substrate
4	Creek heelsplitter	Sand and gravel substrate
5	Round pigtoe	
6	Strange floater	Mud, sand and gravel substrate
7	Ellipse	Sand and gravel substrate

Table 15-12. Habitat Preferences of SGCN - Creek Habitat

Group	Common Name	Comments
Fish		
1	American brook lamprey	
2	Gravel chub	
3	Redfin shiner	
4	Ghost shiner	
5	Blacknose shiner	
6	Ozark minnow	
7	Weed shiner	
8	Topeka shiner	
9	Southern redbelly dace	
10	River redhorse	
11	Black redhorse	
12	Tadpole madtom	
13	Freckled madtom	
14	Brook trout	
15	Starhead topminnow	Heavily vegetated creeks & oxbows
16	Plains topminnow	Clear, vegetated creeks
17	Mottled sculpin	
18	Bluntnose darter	
19	Least darter	
20	Orangthroat darter	
21	Banded darter	
22	Northern logperch	
23	Blackside darter	
24	Slenderhead darter	
Reptiles and Amphibians		
1	Cricket Frog	Mud banks
Dragonflies and Damselflies		
1	Cyrano darner	
2	Rapids clubtail	
3	Rusty snaketail	
Mussels		
1	Slippershell	
2	Clylinder	Mud and sand substrate
3	Creek heelsplitter	
4	Pondmussel	
5	Lilliput	

Table 15-13. Habitat Preferences of SGCN - Impoundment Habitat

Group	Common Name	Comments
Fish		
1	Silver lamprey	
2	Paddlefish	
3	Longnose gar	
4	Skipjack herring	
5	Pugnose shiner	
6	Black buffalo	
7	Brown bullhead	
8	Tadpole madtom	
9	Northern logperch	
Reptiles and Amphibians		
1	Tiger Salamander	
2	Mudpuppy	With gravel bars for reproduction
Mussels		
1	Paper pondshell	

Table1 5-14. Habitat Preferences of SGCN - Backwater Habitat

Group	Common Name	Comments
Fish		
1	Paddlefish	
2	Longnose gar	
3	Bowfin	
4	Goldeye	
5	Western silvery minnow	
6	Mississippi silvery minnow	
7	Topeka shiner	
8	Black buffalo	
9	Brown bullhead	
10	Blue catfish	
11	Tadpole madtom	
12	Grass pickerel	
13	Central mudminnow	
14	Pirate perch	
15	Starhead topminnow	Heavily vegetated creeks, oxbows, and backwaters
16	Blackstripe topminnow	
17	Plains topminnow	Clear, quiet, vegetated backwaters
18	Mud darter	
19	Bluntnose darter	
Reptiles and Amphibians		
1	Cricket Frog	Mud flats
2	Blanding's Turtle	Vegetated with open canopy
3	Yellow Mud Turtle	Adjacent to soils of nearly pure sand
4	Common Musk Turtle	Mud bottom
5	Diamondback Watersnake	With abundant basking sites
6	Copperbelly Watersnake	Quiet pools
Mussels		
1	Slough sandshell	
Dragonflies and Damselflies		
1	Cyrano darner	
2	Slaty skimmer	
3	Blue-faced meadowhawk	

Table 15-15. Habitat Preferences of SGCN - Lake Habitat (includes natural and man-made, shallow and deep water sub-classifications).

Group	Common Name	Comments
Fish		
1	Silver lamprey	
2	Lake sturgeon	
3	Longnose gar	
4	Bowfin	
5	Goldeye	
6	American eel	
7	Pearl dace	
8	Pugnose shiner	
9	Blackchin shiner	Clear, well-vegetated glacial lakes
10	Blacknose shiner	
11	Spottail shiner	
12	Brown bullhead	
13	Tadpole madtom	
14	Grass pickerel	
15	Pirate perch	
16	Burbot	
17	Banded killifish	
18	Iowa darter	Cool, clear or slightly turbid natural lakes
19	Northern logperch	
Reptiles and Amphibians		
1	Mudpuppy	With gravel bars for reproduction
2	Cricket Frog	Mud banks
Dragonflies and Damselflies		
1	Variable darner	
2	Blue-eyed darner	
3	Cyrano darner	
4	Sulphur-tipped clubtail	
5	Royal river cruiser	
6	Spangled skimmer	
7	Prairie bluet	
8	Vesper bluet	
Mussels		
1	Flat floater	
2	Spike	
3	Lilliput	
4	Paper pondshell	

Table 15-16. Habitat Preferences of SGCN - Pond Habitat

Group	Common Name	Comments
Fish		
1	Pearl dace	
2	Brown bullhead	
3	Grass pickerel	
4	Pirate perch	
5	Banded killifish	
Reptiles and Amphibians		
1	Crawfish Frog	With abundant crayfish
2	Cricket Frog	Mud banks
3	Blanding's Turtle	Limited use in Iowa
4	Common Musk Turtle	Spring fed ponds
Dragonflies and Damselflies		
1	Canada darner	
2	Variable darner	
3	Green-striped darner	
4	Blue-eyed darner	
5	Sulphur-tipped clubtail	
6	Mocha emerald	
7	Spangled skimmer	
8	Four-spotted skimmer	
9	Spotted spreadwing	
10	Sweetflag spreadwing	
11	Elegant spreadwing	
12	Prairie bluet	
13	Alkali bluet	
14	Vesper bluet	
Mussels		
1	Flat floater	
2	Pondmussel	
3	Lilliput	
4	Paper pondshell	

APPENDIX 16. Regional Stress Analysis Tables
Terrestrial Habitats

16-1. Terrestrial Habitat Stresses by Region - General Habitat Stresses

Stress Key:
1 = Conversion to row crops
2 = Conversion to non-native grasses
3. = Conversion for residential use
4. = Conversion for non-farming industrial use
5. = Excessive recreational use damage
6. = Improper grazing
7. = Fire suppression
8. = Fire use
9. = Road construction
10. = Timber harvest
11. = Invasion of non-native species
12. = Pesticide/herbicide use
13. = Drainage
14. = Flooding caused by dams
15. = Disease/pathogens/insect
16. = Fragmentation
17. = Loss of connectivity
18. = Climate change
19. = Absence of habitat

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 16-1. Loess Hills - General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.50	1.00	1.50	1.50	1.00	2.20	2.00	2.50	1.00
2	2.00	1.00	1.50	2.00	.	2.00	.	2.00	1.50
3	2.20	1.00	2.33	2.33	1.00	2.75	2.00	2.33	1.75
4	1.50	1.00	1.50	1.00	1.00	2.00	1.00	2.00	1.00
5	1.33	1.00	1.67	1.33	1.00	2.33	1.00	2.00	1.00
6	2.00	1.00	2.33	2.00	1.00	2.50	2.00	2.25	2.33
7	2.50	1.00	2.50	1.50	1.00	2.75	1.00	2.67	1.50
8	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
9	1.50	1.00	1.50	1.50	1.00	1.50	1.00	1.33	1.33
10	1.00	.	1.00	1.00	1.00	1.50	1.00	1.50	1.00
11	2.50	1.00	2.50	1.50	1.00	1.50	2.00	2.00	1.50
12	2.33	1.00	2.33	1.67	1.00	2.25	2.00	1.50	2.00
13	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.67
14	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
16	2.60	1.00	2.50	2.00	1.00	2.00	2.00	2.00	1.00
17	2.00	1.00	2.00	2.00	1.00	2.75	1.00	3.00	1.00
18	.	.	.	3.00	.	3.00	3.00	.	1.00
19	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MEAN	1.78	1.00	1.73	1.54	1.00	1.90	1.50	1.78	1.29

Table 16-2. Mississippi Alluvial Plain - General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.40	1.40	1.50	1.75	1.00	2.40	2.25	1.50	1.00
2	1.20	1.20	1.40	1.50	1.25	1.80	2.25	1.50	2.00
3	2.00	1.20	2.20	1.50	1.00	1.80	1.25	2.50	2.00
4	1.80	1.40	1.60	1.50	1.00	2.00	1.25	1.75	1.67
5	1.40	1.20	1.60	1.25	1.25	1.80	1.75	1.75	1.25
6	2.40	2.20	2.20	2.00	1.75	2.00	2.25	2.50	2.00
7	1.60	1.40	2.00	1.50	1.50	2.00	2.00	2.25	1.00
8	1.40	1.20	1.20	1.25	1.00	1.40	1.50	1.75	1.50
9	1.60	1.60	1.80	1.50	1.25	1.40	1.25	1.50	2.00
10	1.80	1.80	2.00	1.33	1.25	1.00	1.33	1.67	1.33
11	1.80	1.80	2.00	1.67	1.67	1.75	2.33	1.75	1.00
12	1.60	1.80	1.25	1.25	1.25	1.80	1.75	2.00	2.00
13	1.00	1.75	1.25	1.00	2.00	1.20	2.33	1.50	2.00
14	1.80	1.80	1.75	1.75	2.00	1.40	2.00	1.33	1.50
15	2.00	1.80	2.25	1.50	1.25	1.20	1.50	1.67	1.50
16	2.60	2.40	2.75	2.00	1.75	1.80	1.75	2.50	1.00
17	2.40	2.20	2.50	2.25	2.25	2.20	2.67	2.25	2.00
18	2.00	1.80	1.33	1.33	1.25	1.25	2.00	1.25	1.50
19	1.67	1.67	2.00	2.50	2.50	2.33	2.50	2.33	1.00

Table 16-3. Missouri Alluvial Plain - General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.50	2.50	2.50	3.00	2.50	.	3.00	.	.
2	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	1.00
4	.	.	.	.	.	.	.	.	1.00
5	.	1.00	1.00	2.00	1.00	.	1.00	.	.
6	.	.	.	.	.	.	.	.	.
7	.	.	2.00	.	.	.	1.00	.	.
8	1.00	.	.	.	.	.	.	.	.
9	.	1.00	1.00	1.00	1.00	.	1.00	.	.
10	1.00	2.00	1.50	.	.	.	.	.	.
11	2.00	1.50	1.00	1.00	1.50	.	2.00	.	.
12	.	2.00	2.00	2.00	2.00	.	2.00	.	2.00
13	.	3.00	3.00	3.00	3.00	.	2.33	.	.
14	.	1.00	1.00	1.00	1.00	.	1.00	.	.
15	.	1.00	1.00	1.00	1.00	.	2.00	.	.
16	2.00	3.00	2.50	3.00	3.00	.	3.00	.	.
17	3.00	3.00	3.00	3.00	3.00	.	2.67	.	.
18	.	.	.	.	.	.	.	.	.
19	3.00	3.00	.	.	3.00	.	3.00	.	.

Table 16-4. Prairie Hardwood Transition - General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.67	1.67	2.67	2.33	1.00	3.00	1.50	1.33	.
2	1.33	1.00	1.33	2.33	1.00	2.50	2.00	1.67	3.00
3	3.00	1.00	3.00	2.33	1.00	1.50	1.00	2.00	2.00
4	1.50	1.00	1.50	1.50	1.00	1.50	1.00	1.50	1.00
5	1.33	1.50	1.67	1.50	1.50	1.50	1.67	1.50	1.00
6	3.00	2.00	3.00	2.00	1.67	2.33	2.00	2.00	1.00
7	2.50	1.00	1.50	2.00	1.00	2.50	2.00	2.67	1.00
8	1.50	1.00	1.00	1.50	1.00	1.00	1.00	1.00	1.00
9	1.67	1.50	1.67	1.50	1.00	1.50	1.00	1.67	1.00
10	2.33	1.67	2.33	1.00	3.00	1.00	1.00	1.67	.
11	2.33	2.50	2.33	2.50	2.33	2.50	2.00	1.50	1.00
12	2.00	1.50	1.50	1.50	1.50	2.00	2.00	1.00	3.00
13	1.00	1.33	1.50	1.00	1.67	1.00	2.67	1.00	3.00
14	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15	3.00	2.50	3.00	1.67	2.00	1.00	1.00	2.00	3.00
16	3.00	2.00	3.00	1.67	1.67	2.00	2.00	2.33	1.00
17	2.67	1.67	2.67	2.00	1.67	2.50	1.67	2.33	1.00
18	.	.	.	.	.	.	.	.	.
19	2.00	2.00	2.00	3.00	3.00	3.00	2.00	3.00	1.00

Table 16-5. Prairie Pothole - General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.22	1.33	1.50	1.60	1.89	2.42	2.83	1.78	2.00
2	1.22	1.00	1.20	1.44	1.43	2.17	1.64	1.78	1.22
3	2.55	1.22	2.46	1.92	1.44	2.00	1.30	2.20	1.55
4	1.50	1.33	1.67	1.45	1.33	1.42	1.55	1.70	1.45
5	1.78	1.44	1.55	1.40	1.00	1.27	1.50	1.44	1.00
6	2.56	2.33	2.25	2.10	1.50	2.36	2.00	2.89	2.00
7	1.33	1.29	1.38	1.50	1.43	2.67	1.40	2.67	1.00
8	1.00	1.00	1.11	1.33	1.29	1.30	1.00	1.13	1.00
9	1.22	1.00	1.18	1.10	1.13	1.18	1.20	1.33	1.44
10	1.44	1.56	1.60	1.43	1.00	1.00	1.25	1.50	1.00
11	2.22	2.00	1.82	1.67	1.57	2.44	2.40	2.50	1.89
12	1.11	1.00	1.30	1.22	1.44	2.25	2.17	2.00	2.50
13	1.00	1.63	1.13	1.13	1.50	1.40	2.67	1.25	2.30
14	1.22	1.13	1.22	1.11	1.56	1.33	1.55	1.25	1.10
15	1.90	1.88	1.78	1.89	1.57	1.44	1.22	1.75	2.00
16	2.60	2.70	2.64	2.50	2.63	2.92	2.60	2.78	1.43
17	2.78	2.56	2.64	2.60	2.88	2.92	2.82	2.78	1.14
18	1.29	1.50	1.33	1.38	1.50	1.67	1.78	1.71	1.33
19	2.29	2.00	2.33	2.00	2.00	3.00	3.00	2.50	2.50

Table 16-6. Tallgrass Prairie Southern Iowa - General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.07	1.91	2.23	2.55	1.88	2.58	2.25	2.44	2.50
2	1.73	1.64	1.91	2.18	1.67	2.23	2.09	2.11	2.29
3	2.62	1.22	2.67	2.00	1.14	1.92	1.33	2.50	1.63
4	1.75	1.40	1.58	1.50	1.29	1.73	1.40	1.88	1.75
5	1.75	1.73	1.60	1.44	1.14	1.67	1.60	1.71	1.00
6	2.50	2.42	2.63	2.50	2.33	2.47	2.08	2.75	2.29
7	2.17	2.00	2.42	2.27	1.63	2.86	1.89	2.91	1.83
8	1.20	1.14	1.13	1.14	1.00	1.11	1.00	1.00	1.50
9	1.46	1.22	1.36	1.30	1.00	1.27	1.11	1.13	1.29
10	2.00	2.23	1.86	1.11	1.14	1.00	1.00	1.89	1.20
11	2.38	2.60	2.50	2.11	2.22	2.07	2.42	2.43	2.00
12	1.45	1.50	1.45	1.64	1.63	1.87	1.92	1.88	2.67
13	1.00	1.90	1.00	1.00	2.56	1.30	2.50	1.17	2.33
14	1.27	1.38	1.30	1.22	1.43	1.11	1.56	1.00	1.00
15	2.27	1.88	2.11	1.57	1.83	1.29	1.63	2.00	1.83
16	2.57	2.42	2.45	2.27	1.75	2.50	2.38	2.38	1.60
17	2.54	2.22	2.58	2.22	2.00	2.33	2.50	2.25	1.60
18	1.67	2.00	1.67	1.60	2.20	1.57	2.14	1.80	1.25
19	2.25	2.50	2.50	3.00	3.00	2.50	2.83	3.00	1.00

Table 16-7. Tallgrass Prairie Iowan Surface- General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.67	2.00	2.67	2.50	1.33	3.00	2.25	2.50	.
2	1.67	1.67	2.00	2.00	2.00	1.67	2.33	2.00	1.67
3	3.00	1.67	3.00	1.50	1.00	2.00	1.00	2.67	2.33
4	1.67	1.67	1.67	1.50	1.50	1.67	1.67	1.50	2.00
5	2.33	2.00	2.00	1.50	1.00	1.67	1.00	2.00	1.00
6	2.25	2.00	2.25	2.50	2.50	2.75	2.00	3.00	1.67
7	2.50	2.33	2.25	2.50	2.67	2.75	2.00	2.67	1.00
8	1.50	1.50	1.50	1.00	1.00	1.00	1.00	1.00	1.00
9	2.00	1.33	1.67	1.00	1.00	1.33	1.33	1.00	1.00
10	2.25	2.50	2.00	1.50	1.00	1.33	1.00	1.50	1.00
11	2.33	2.00	2.25	2.00	2.00	2.25	2.50	1.50	1.25
12	1.00	1.00	1.00	1.00	1.50	1.75	2.00	1.50	2.00
13	1.00	2.00	1.00	1.00	2.33	1.00	3.00	1.00	1.33
14	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.00	1.00
15	2.00	1.50	2.00	1.00	1.50	1.00	1.00	1.00	1.67
16	3.00	2.50	3.00	3.00	3.00	3.00	2.67	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	1.00	1.00	1.00	1.00	1.00	1.67	1.00	1.00	1.00
19	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00

Table 16-8. Tallgrass Prairie Northwest Iowa Plains - General Habitat Stresses

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.50	1.50	1.50	1.50	2.00	3.00	3.00	3.00	3.00
2	1.00	1.00	1.00	1.00	.	2.50	1.50	1.00	2.00
3	2.50	1.00	2.50	2.00	.	2.00	1.00	3.00	1.50
4	1.50	2.00	2.00	2.00	3.00	1.00	2.00	1.00	1.00
5	2.50	2.00	2.00	2.00	2.00	1.50	1.50	1.00	1.00
6	3.00	3.00	3.00	3.00	3.00	2.50	1.50	2.00	3.00
7	1.00	2.00	2.00	2.00	3.00	2.50	1.50	2.00	1.00
8	1.00	1.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00
9	1.00	1.00	1.00	1.00	1.00	1.50	1.50	1.00	1.00
10	2.00	1.50	1.50	1.50	1.00	1.00	2.00	.	1.00
11	2.50	2.00	2.00	2.00	2.00	2.00	3.00	1.00	1.00
12	1.00	2.00	2.00	2.00	3.00	2.00	1.50	1.00	2.00
13	1.00	1.00	1.00	1.00	1.00	1.50	2.50	2.00	1.00
14	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00
15	3.00	1.50	2.00	2.00	1.00	1.00	1.00	.	1.00
16	2.50	2.00	2.00	2.00	.	3.00	3.00	.	2.00
17	2.50	2.50	2.50	2.50	3.00	3.00	2.00	2.00	2.00
18	1.00	2.00	2.00	2.00	3.00	2.00	1.00	2.00	1.00
19	3.00	2.00	2.00	2.00	1.00	2.00	2.00	1.00	3.00

16-2. Terrestrial Stresses by Region - Birds

Stress Key:
1 = Conversion to row crops
2 = Conversion to non-native grasses
3. = Conversion for residential use
4. = Conversion for non-farming industrial use
5. = Excessive recreational use damage
6. = Improper grazing
7. = Fire suppression
8. = Fire use
9. = Road construction
10. = Timber harvest
11. = Invasion of non-native species
12. = Pesticide/herbicide use
13. = Drainage
14. = Flooding caused by dams
15. = Disease/pathogens/insect
16. = Fragmentation
17. = Loss of connectivity
18. = Climate change
19. = Absence of habitat

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 16-9. Loess Hills - Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.00	1.00	2.00	2.00	2.00	3.00	2.00	3.00	1.00
2	1.00	1.50	2.50	2.50	2.00	3.00	2.50	3.00	1.00
3	2.00	1.50	2.00	2.00	1.00	2.00	1.00	1.50	1.00
4	1.00	1.00	2.00	2.00	1.00	2.00	1.00	1.50	1.00
5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00
6	2.00	2.00	3.00	2.50	2.00	3.00	2.00	3.00	3.00
7	2.00	1.50	3.00	2.00	1.50	3.00	1.00	2.00	1.00
8	1.50	1.00	2.00	3.00	1.00	1.00	1.00	1.00	.
9	2.00	1.00	2.00	2.00	1.00	2.00	1.00	1.50	1.00
10	1.50	1.00	2.00	1.00	1.00	1.00	1.00	1.50	.
11	1.50	2.50	3.00	2.50	3.00	3.00	3.00	2.50	3.00
12	1.00	1.50	1.00	1.50	1.50	3.00	2.50	3.00	3.00
13	1.00	3.00	1.00	1.00	3.00	1.00	3.00	1.00	.
14	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	.
15	1.50	2.00	2.00	1.50	1.00	1.50	1.50	2.00	1.00
16	2.00	3.00	3.00	2.50	2.50	3.00	3.00	2.00	2.00
17	2.00	3.00	3.00	2.50	2.50	3.00	3.00	2.00	2.00
18	2.00	2.00	2.00	2.00	2.50	2.00	2.00	1.50	1.00
19	1.00	2.00	2.00	2.00	3.00	3.00	3.00	3.00	1.00

Table 16-10. Mississippi Alluvial Plain - Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	2.50	3.00	3.00	2.50	3.00	2.00	2.50	3.00
2	1.50	1.50	2.50	2.50	2.00	3.00	2.50	3.00	3.00
3	2.00	1.00	3.00	2.00	1.00	3.00	1.00	3.00	2.00
4	1.50	1.50	2.50	2.00	1.00	2.50	1.00	2.50	2.00
5	2.50	2.00	2.50	2.00	1.50	2.00	1.50	2.50	1.00
6	2.00	2.50	3.00	3.00	2.00	2.50	2.00	3.00	3.00
7	1.50	1.00	3.00	2.50	1.00	3.00	1.00	3.00	1.00
8	1.00	1.00	3.00	3.00	1.00	1.00	1.00	2.00	1.00
9	2.00	1.00	2.00	2.00	1.00	2.00	1.00	2.00	1.50
10	3.00	2.50	3.00	1.00	1.00	1.00	1.00	2.50	1.00
11	2.50	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
12	1.50	2.00	2.00	3.00	2.50	3.00	2.50	2.50	3.00
13	1.00	3.00	1.00	1.00	3.00	1.00	3.00	1.00	1.00
14	2.00	3.00	2.00	2.00	3.00	2.00	3.00	2.00	2.00
15	1.50	2.00	2.50	1.50	1.50	1.50	1.50	2.00	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
18	2.50	2.50	2.00	2.00	2.00	1.50	2.00	2.00	1.50
19	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Table 16-11. Missouri Alluvial Plain - Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	3.00	2.00	3.00	3.00	3.00	3.00	2.00	3.00
2	1.00	1.00	1.50	3.00	2.00	3.00	2.50	2.00	3.00
3	1.50	1.00	2.00	1.50	1.00	2.00	1.00	2.00	1.50
4	1.50	1.50	2.00	2.00	1.00	2.00	1.00	2.00	1.50
5	2.00	2.00	2.00	2.00	1.50	2.00	1.50	2.00	1.00
6	1.00	2.00	2.50	2.00	1.00	2.50	2.00	2.50	3.00
7	1.50	1.00	3.00	2.00	1.00	3.00	1.00	3.00	1.00
8	1.00	1.00	3.00	3.00	1.00	1.00	1.00	2.00	1.00
9	2.00	1.50	2.00	2.00	1.00	2.00	1.00	2.00	1.50
10	2.00	2.00	2.50	1.00	1.00	1.00	1.00	2.50	1.00
11	1.50	3.00	3.00	2.50	3.00	3.00	3.00	3.00	2.50
12	1.50	2.50	2.50	3.00	2.00	3.00	2.50	3.00	3.00
13	1.00	3.00	1.00	1.00	3.00	1.00	3.00	1.00	1.00
14	1.00	1.50	1.00	1.00	1.50	1.00	1.50	1.00	1.00
15	1.50	2.00	2.00	1.50	1.50	1.50	1.50	1.50	2.00
16	2.00	3.00	2.50	2.50	3.00	3.00	3.00	3.00	2.00
17	2.00	3.00	2.50	2.50	3.00	3.00	3.00	3.00	2.00
18	2.00	2.50	2.00	2.00	2.00	1.50	2.00	2.00	1.50
19	1.00	3.00	2.00	2.00	3.00	3.00	3.00	3.00	1.00

Table 16-12. Prairie to Hardwood Transition - Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.50	3.00	2.00	3.00	2.00	3.00	3.00
2	1.00	1.00	2.00	2.50	2.00	3.00	2.50	3.00	3.00
3	3.00	1.50	3.00	2.50	1.00	2.50	1.00	3.00	2.50
4	1.00	1.00	1.50	2.00	1.00	2.00	1.00	2.00	1.50
5	2.50	2.50	2.50	2.00	2.00	2.00	2.00	2.50	1.00
6	2.50	2.50	3.00	3.00	2.00	3.00	2.00	3.00	3.00
7	1.50	1.00	3.00	3.00	1.00	3.00	1.50	3.00	1.50
8	1.00	1.00	2.00	3.00	1.00	1.00	1.00	1.00	1.00
9	2.00	1.50	2.00	2.00	1.50	2.00	1.00	2.00	1.50
10	3.00	3.00	3.00	1.00	1.00	1.00	1.00	2.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
12	1.50	2.00	2.00	3.00	3.00	3.00	2.50	3.00	3.00
13	1.00	3.00	1.00	1.00	3.00	1.00	3.00	1.00	1.00
14	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	2.00
15	3.00	3.00	3.00	2.00	2.00	2.00	1.50	2.50	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
18	2.50	2.50	2.00	2.00	2.50	2.00	2.00	2.00	1.50
19	3.00	3.00	3.00	3.00	3.00	3.00	2.00	3.00	1.00

Table 16-13. Prairie Pothole - Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.50	3.00	3.00	2.50	2.50	3.00
2	1.50	1.00	2.50	2.50	1.00	2.50	2.00	2.50	3.00
3	2.00	1.00	3.00	2.00	1.00	2.50	1.00	3.00	2.00
4	1.00	1.00	1.00	1.50	1.00	2.00	1.00	1.50	1.50
5	2.00	2.50	2.50	1.50	1.00	2.00	2.00	2.00	1.00
6	2.00	3.00	3.00	2.50	2.00	3.00	2.00	3.00	3.00
7	1.50	1.00	3.00	2.50	1.00	3.00	1.00	3.00	1.50
8	1.00	1.00	1.00	3.00	1.00	1.00	1.00	1.00	1.00
9	2.00	1.00	2.00	2.00	1.00	2.00	1.00	2.00	1.50
10	2.00	2.00	2.50	1.00	1.00	1.00	1.00	2.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
12	1.50	1.50	2.00	3.00	2.50	3.00	2.00	3.00	3.00
13	1.00	3.00	1.00	1.00	2.50	2.00	3.00	2.00	3.00
14	1.00	2.00	1.00	1.00	2.00	2.00	1.50	1.00	1.00
15	1.50	2.00	1.50	1.50	2.00	1.50	1.50	1.50	2.00
16	2.50	3.00	3.00	3.00	3.00	3.00	2.50	3.00	2.00
17	2.50	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
18	2.50	2.50	2.00	1.50	2.00	2.00	2.00	2.00	1.50
19	2.00	3.00	2.00	3.00	3.00	2.00	3.00	3.00	1.00

Table 16-14. Tallgrass Prairie Southern Iowa Drift Plain - Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.50	3.00	2.00	3.00	2.00	3.00	3.00
2	1.50	1.50	2.50	2.00	2.50	3.00	3.00	3.00	3.00
3	2.50	1.50	3.00	2.50	1.00	2.50	1.00	3.00	2.00
4	1.50	1.00	2.00	2.00	1.00	2.00	1.00	2.00	1.50
5	2.50	1.50	2.50	2.00	1.50	2.00	1.00	2.50	1.00
6	2.50	2.50	3.00	3.00	2.50	3.00	2.00	3.00	3.00
7	1.50	1.00	3.00	3.00	1.00	2.00	1.00	3.00	1.00
8	1.00	1.00	2.00	3.00	1.00	1.00	1.00	2.00	1.00
9	2.00	1.00	2.00	2.00	1.00	2.00	1.00	2.00	1.50
10	3.00	2.50	3.00	1.00	1.00	1.00	1.00	2.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
12	1.00	1.50	2.00	3.00	2.50	3.00	2.50	2.50	3.00
13	1.00	2.00	1.00	1.00	2.00	1.00	3.00	1.00	1.00
14	1.00	2.00	1.00	1.00	2.00	1.00	2.00	1.00	2.00
15	2.00	2.50	2.50	1.50	1.50	1.50	1.50	2.50	2.00
16	3.00	3.00	3.00	3.00	2.50	3.00	2.50	3.00	2.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
18	2.50	2.50	2.00	1.50	2.00	1.50	2.50	1.50	1.50
19	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Table 16-15. Tallgrass Prairie Iowan Surface - Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.50	2.50	3.00	3.00	2.50	2.50
2	1.00	1.00	2.00	2.00	2.00	3.00	3.00	2.50	3.00
3	3.00	1.00	3.00	2.50	1.00	2.50	1.00	3.00	2.00
4	1.50	1.00	1.50	2.00	1.00	2.00	1.00	2.00	1.50
5	2.50	2.50	2.50	2.00	1.50	2.00	2.00	2.00	1.00
6	2.50	2.50	3.00	3.00	2.00	3.00	2.50	3.00	2.00
7	1.50	1.00	3.00	2.50	1.00	3.00	1.00	3.00	1.50
8	1.00	1.00	1.00	3.00	1.00	1.00	1.00	2.00	1.00
9	2.00	1.00	2.00	2.00	1.00	2.00	1.00	2.00	1.50
10	2.50	2.00	2.50	1.00	1.00	1.00	1.00	2.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
12	1.50	1.50	2.00	3.00	2.50	3.00	3.00	3.00	3.00
13	1.00	2.50	1.00	1.00	2.50	1.00	3.00	1.00	3.00
14	1.00	2.00	1.00	1.00	2.00	1.00	1.50	1.00	2.00
15	1.50	2.00	1.50	1.50	2.00	1.50	1.50	1.50	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	2.50	3.00	3.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
18	2.50	2.50	2.00	1.50	2.00	2.00	2.00	1.50	1.50
19	2.00	3.00	3.00	3.00	3.00	2.00	3.00	3.00	1.00

Table 16-16. Tallgrass Prairie Northwest Iowa Plains - Birds

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.00	1.50	1.50	1.50	1.50	3.00	2.50	2.50	2.50
2	1.00	1.00	1.50	1.50	2.00	3.00	3.00	2.50	3.00
3	2.00	1.00	2.00	2.00	1.00	2.00	1.00	3.00	1.50
4	1.00	1.00	1.50	1.50	1.00	1.50	1.00	1.50	1.50
5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00
6	1.50	2.50	2.50	2.00	1.50	3.00	2.50	3.00	3.00
7	1.00	1.00	3.00	2.00	1.00	3.00	1.00	3.00	1.00
8	1.00	1.00	1.00	3.00	1.00	3.00	1.00	3.00	1.00
9	2.00	1.00	2.00	2.00	1.50	2.00	1.00	2.00	1.50
10	1.00	1.50	2.50	1.00	1.00	1.00	1.00	2.50	1.00
11	1.50	2.50	2.50	2.00	1.50	3.00	2.50	3.00	2.50
12	1.00	1.50	2.00	2.50	2.50	3.00	2.50	3.00	3.00
13	1.00	2.00	1.00	1.00	3.00	2.00	3.00	1.00	1.00
14	1.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00
15	1.50	2.00	1.50	1.50	1.50	1.50	1.50	1.50	2.00
16	2.00	3.00	3.00	2.50	2.50	3.00	3.00	3.00	2.00
17	2.00	3.00	3.00	2.50	2.50	3.00	3.00	3.00	2.00
18	2.00	2.50	2.00	2.00	2.50	1.50	1.50	1.50	1.50
19	1.00	2.00	2.00	2.00	2.00	3.00	3.00	3.00	1.00

16-3 Terrestrial Stresses by Region - Mammals

Stress Key:

1 = Conversion to row crops
2 = Conversion to non-native grasses
3. = Conversion for residential use
4. = Conversion for non-farming industrial use
5. = Excessive recreational use damage
6. = Improper grazing
7. = Fire suppression
8. = Fire use
9. = Road construction
10. = Timber harvest
11. = Invasion of non-native species
12. = Pesticide/herbicide use
13. = Drainage
14. = Flooding caused by dams
15. = Disease/pathogens/insect
16. = Fragmentation
17. = Loss of connectivity
18. = Climate change
19. = Absence of habitat

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 16-17. Loess Hills - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.50	2.00	1.50	1.50	2.00	2.50	2.50	2.00	3.00
2	1.50	2.00	2.00	2.50	2.00	2.50	2.50	2.50	3.00
3	3.00	1.50	3.00	3.00	1.50	3.00	1.50	3.00	3.00
4	2.00	1.50	2.00	2.00	2.50	2.00	2.50	2.50	2.50
5	3.00	2.50	3.00	3.00	2.50	2.00	2.00	2.50	3.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	1.50	2.50	3.00	1.50	3.00	1.50	3.00	3.00
8	3.00	2.00	3.00	3.00	2.00	3.00	2.00	3.00	3.00
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	1.50	1.50	1.50	1.00	1.00	1.00	1.00	1.50	2.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	1.00	1.00	1.00	1.50	1.50	2.00	2.00	1.50	3.00
13	1.00	2.50	1.00	1.00	2.50	2.00	3.00	1.00	2.50
14	1.00	1.50	1.00	1.00	1.50	1.00	2.00	1.00	1.50
15	1.50	1.50	1.50	1.00	1.00	1.50	1.50	1.50	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	1.50	2.00	2.00	2.00	3.00	2.00	3.00	3.00	1.00

Table 16-18. Mississippi Alluvial Plain - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.00	2.00	3.00	2.50	2.50	2.00
2	1.50	1.50	1.50	1.50	1.50	2.50	2.00	2.50	2.50
3	2.00	1.50	3.00	2.50	1.50	3.00	1.50	3.00	2.50
4	3.00	2.00	3.00	2.50	2.00	3.00	2.50	3.00	2.00
5	3.00	2.50	3.00	3.00	2.50	2.00	2.00	2.50	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	1.00	1.00	1.50	2.50	1.00	3.00	1.00	3.00	2.00
8	1.00	1.00	1.00	2.00	1.00	3.00	1.00	3.00	2.00
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	3.00	2.50	3.00	1.00	1.00	1.00	1.00	2.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	1.50	1.50	1.50	2.00	1.50	2.00	2.00	2.00	3.00
13	2.00	2.50	2.00	2.00	2.50	3.00	3.00	2.00	3.00
14	2.00	2.50	2.00	2.00	2.50	3.00	2.50	2.00	2.00
15	2.00	1.50	2.00	1.50	1.50	2.00	1.50	2.00	1.50
16	2.50	2.50	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	2.50	2.50	2.50	3.00	3.00	3.00	3.00	3.00	1.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	2.00	2.00	2.50	2.00	3.00	2.50	2.50	3.00	1.00

Table 16-19. Missouri Alluvial Plain - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.00	2.00	3.00	2.50	2.50	2.00
2	1.50	1.50	1.50	1.50	1.50	2.50	2.50	2.00	2.50
3	1.50	1.00	2.50	2.50	1.00	2.50	1.00	2.50	2.00
4	2.50	2.00	2.50	2.50	2.00	2.50	2.50	2.50	2.00
5	3.00	2.50	3.00	3.00	2.50	2.00	2.00	2.50	3.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	2.00	2.50	3.00	2.00	3.00	2.00	3.00	2.00
8	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	1.50	1.50	1.50	1.00	1.00	1.00	1.00	1.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	1.50	1.50	1.50	2.00	2.00	2.00	2.00	1.50	3.00
13	3.00	2.50	3.00	3.00	2.50	3.00	3.00	3.00	3.00
14	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.50
15	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
16	2.00	2.00	2.50	3.00	3.00	3.00	3.00	3.00	1.00
17	2.50	2.50	2.50	3.00	3.00	3.00	3.00	3.00	1.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	2.00	2.00	2.50	2.50	3.00	2.50	2.50	3.00	1.00

Table 16-20. Prairie to Hardwood Transition - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.50	2.00	2.00	2.00	2.00	2.50	2.00	2.00	2.00
2	1.50	1.50	1.50	2.00	1.50	2.50	2.50	2.50	2.50
3	3.00	1.50	3.00	2.50	1.00	3.00	1.00	3.00	2.50
4	1.50	1.50	1.50	1.50	1.00	1.50	1.00	2.00	2.00
5	3.00	3.00	3.00	3.00	2.00	2.00	1.50	2.50	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	1.00	2.00	2.00	1.00	3.00	1.00	2.50	1.00
8	1.00	1.00	1.00	2.00	1.00	3.00	2.00	3.00	1.00
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	2.50	2.50	2.50	1.00	1.00	1.00	1.00	1.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	1.50	1.50	1.00	1.50	1.50	2.50	2.50	2.00	3.00
13	2.00	2.00	1.00	1.00	2.00	2.00	3.00	1.50	2.50
14	1.00	1.50	1.00	1.00	1.50	1.00	1.50	1.00	1.50
15	1.50	1.50	1.50	1.50	1.00	1.00	1.00	1.50	1.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	2.50	3.00	2.50	2.50	3.00	3.00	3.00	3.00	1.00

Table 16-21. Prairie Pothole - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	3.00	2.50	2.00	3.00	3.00	3.00	3.00
2	1.50	1.50	2.00	3.00	2.00	3.00	3.00	2.50	2.50
3	2.50	1.00	2.50	2.00	1.00	1.50	1.00	2.50	2.50
4	1.50	1.00	1.50	1.00	1.00	1.00	1.00	2.00	2.00
5	3.00	2.50	3.00	3.00	2.50	2.00	2.00	2.50	1.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
7	2.00	1.00	2.00	2.50	1.00	3.00	1.00	3.00	1.00
8	1.00	1.00	1.00	2.00	1.00	3.00	1.00	3.00	1.00
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	2.50	2.50	2.50	1.00	1.00	1.00	1.00	1.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
12	1.50	1.50	1.50	2.00	1.50	2.50	2.50	1.50	2.50
13	3.00	2.50	3.00	3.00	2.50	2.00	3.00	2.00	3.00
14	1.50	2.50	1.50	1.50	2.50	2.00	2.50	1.50	1.50
15	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.50	1.50
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00

Table 16-22. Tallgrass Prairie Southern Iowa Drift Plain - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.00	2.00	2.50	2.50	2.50	2.50
2	2.00	2.00	2.00	2.50	2.00	2.50	2.50	2.50	3.00
3	3.00	1.50	2.50	2.50	1.50	3.00	1.50	3.00	2.50
4	1.50	1.50	1.50	1.50	1.50	1.50	1.50	2.00	2.00
5	3.00	2.50	3.00	3.00	2.50	2.00	2.00	2.50	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
7	2.00	1.00	2.00	2.50	1.00	3.00	1.50	2.00	1.00
8	1.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00	1.00
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	3.00	2.50	3.00	1.00	1.00	1.00	1.00	2.00	2.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	1.00	1.00	1.00	1.50	1.00	2.00	1.50	1.00	2.50
13	1.00	2.00	1.00	1.00	2.00	2.00	3.00	1.00	2.50
14	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
15	2.00	1.50	2.00	1.50	1.50	1.50	1.50	1.50	1.50
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	2.50	3.00	2.50	2.50	3.00	3.00	3.00	3.00	1.00

Table 16-23. Tallgrass Prairie Iowan Surface - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.00	2.00	2.50	2.50	2.50	3.00
2	2.00	2.00	1.50	2.50	2.00	2.50	2.50	2.50	2.50
3	2.50	1.50	3.00	3.00	1.00	3.00	1.00	3.00	2.50
4	1.50	1.50	2.00	2.00	1.00	2.00	1.00	2.50	2.00
5	3.00	2.50	3.00	3.00	2.50	2.00	2.00	2.50	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
7	2.00	1.00	2.00	2.00	1.00	2.50	1.00	2.50	1.00
8	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	2.50	2.50	2.50	1.00	1.00	1.00	1.00	1.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	2.00	2.00	2.00	2.00	2.00	2.50	2.50	2.00	3.00
13	3.00	2.50	3.00	3.00	2.50	2.00	3.00	2.00	3.00
14	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
15	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	2.50	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00

Table 16-24. Tallgrass Prairie Northwest Iowa Plains - Mammals

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.00	2.00	2.50	2.50	2.50	3.00
2	1.50	1.50	1.50	2.50	1.50	2.50	2.00	2.50	2.50
3	2.50	1.00	2.50	2.00	1.00	2.50	1.00	2.50	2.50
4	1.50	1.00	1.50	1.00	1.00	1.50	1.00	2.00	2.00
5	3.00	2.50	3.00	3.00	2.50	2.00	2.00	2.50	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50
7	2.00	1.00	2.00	2.50	1.50	3.00	2.00	3.00	2.00
8	1.00	1.00	1.00	2.00	2.00	3.00	3.00	3.00	1.50
9	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
10	2.50	2.50	2.50	1.00	1.00	1.00	1.00	1.50	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	2.00	2.00	2.00	2.00	2.00	2.50	2.50	2.00	3.00
13	3.00	2.50	3.00	3.00	2.50	2.00	3.00	2.00	2.50
14	1.50	2.00	1.50	1.50	2.00	1.50	2.00	1.50	1.50
15	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
19	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00

16-4 Terrestrial Stresses by Region - Reptiles and Amphibians (Herps)

Stress Key:

1 = Conversion to row crops
2 = Conversion to non-native grasses
3. = Conversion for residential use
4. = Conversion for non-farming industrial use
5. = Excessive recreational use damage
6. = Improper grazing
7. = Fire suppression
8. = Fire use
9. = Road construction
10. = Timber harvest
11. = Invasion of non-native species
12. = Pesticide/herbicide use
13. = Drainage
14. = Flooding caused by dams
15. = Disease/pathogens/insect
16. = Fragmentation
17. = Loss of connectivity
18. = Climate change
19. = Absence of habitat

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 16-25. Loess Hills - Herps

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	.	.	3.00	.	.	3.00	3.00	3.00	.
2	.	.	.	.	.	1.00	1.00	.	.
3	.	.	3.00	.	.	3.00	3.00	3.00	2.00
4	.	.	1.00	.	.	1.00	1.00	1.00	1.00
5	.	.	.	.	.	.	.	.	.
6	.	.	1.00	.	.	1.00	1.00	1.00	1.00
7	.	.	.	.	.	3.00	3.00	3.00	.
8	.	.	1.00	.	.	2.00	2.00	2.00	2.00
9	.	.	3.00	.	.	3.00	3.00	3.00	3.00
10	.	.	1.00	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.
12	.	.	3.00	.	.	3.00	3.00	3.00	3.00
13	.	.	.	.	.	.	3.00	.	3.00
14	.	.	.	.	.	.	.	.	.
15	.	.	1.00	.	.	1.00	1.00	1.00	1.00
16	.	.	3.00	.	.	3.00	3.00	3.00	3.00
17	.	.	3.00	.	.	3.00	3.00	2.00	2.00
18	.	.	1.00	.	.	1.00	1.00	1.00	1.00
19	.	.	3.00	.	.	3.00	3.00	3.00	3.00

Table 16-26. Mississippi and Missouri Alluvial Plains - Herps

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	.	3.00	.	.	3.00	3.00	3.00	.	.
2	.	.	.	.	.	1.00	1.00	.	.
3	.	3.00	.	.	.	3.00	3.00	.	2.00
4	.	.	.	.	.	1.00	1.00	.	1.00
5	.	.	.	.	.	.	.	.	.
6	.	1.00	.	.	1.00	1.00	1.00	.	1.00
7	.	.	.	.	.	3.00	3.00	.	.
8	.	1.00	.	.	2.00	2.00	2.00	.	2.00
9	.	3.00	.	.	3.00	3.00	3.00	.	3.00
10	.	1.00	.	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.
12	.	3.00	.	.	3.00	3.00	3.00	.	3.00
13	.	3.00	.	.	3.00	.	3.00	.	3.00
14	.	1.00	.	.	1.00	.	1.00	.	.
15	.	1.00	.	.	1.00	1.00	1.00	.	1.00
16	.	3.00	.	.	3.00	3.00	3.00	.	3.00
17	.	3.00	.	.	3.00	3.00	3.00	.	2.00
18	.	1.00	.	.	1.00	1.00	1.00	.	1.00
19	.	3.00	.	.	3.00	3.00	3.00	.	3.00

Table 16-27. Prairie to Hardwood Transition - Herps

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	.	3.00	.	3.00	3.00	3.00	3.00	.
2	.	.	.	.	.	1.00	1.00	.	.
3	3.00	.	3.00	.	.	3.00	3.00	3.00	2.00
4	1.00	.	1.00	.	.	1.00	1.00	1.00	1.00
5	.	.	.	.	.	.	.	.	.
6	1.00	.	1.00	.	1.00	1.00	1.00	1.00	1.00
7	.	.	.	.	.	3.00	3.00	3.00	.
8	1.00	.	1.00	.	2.00	2.00	2.00	2.00	2.00
9	3.00	.	3.00	.	3.00	3.00	3.00	3.00	3.00
10	1.00	.	1.00	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.
12	3.00	.	3.00	.	3.00	3.00	3.00	3.00	3.00
13	.	.	.	.	3.00	.	3.00	.	3.00
14	.	.	.	.	.	.	.	.	.
15	1.00	.	1.00	.	1.00	1.00	1.00	1.00	1.00
16	3.00	.	3.00	.	3.00	3.00	3.00	3.00	3.00
17	3.00	.	3.00	.	3.00	3.00	3.00	2.00	2.00
18	1.00	.	1.00	.	1.00	1.00	1.00	1.00	1.00
19	3.00	.	3.00	.	3.00	3.00	3.00	3.00	3.00

Table 16-28. Prairie Pothole - Herps

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	.	3.00	.	.	.	3.00	3.00	.	.
2	.	.	.	.	.	1.00	1.00	.	.
3	.	3.00	.	.	.	3.00	3.00	.	2.00
4	.	.	.	.	.	1.00	1.00	.	1.00
5	.	.	.	.	.	.	.	.	.
6	.	1.00	.	.	.	1.00	1.00	.	1.00
7	.	.	.	.	.	3.00	3.00	.	.
8	.	1.00	.	.	.	2.00	2.00	.	2.00
9	.	3.00	.	.	.	3.00	3.00	.	3.00
10	.	1.00	.	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.
12	.	3.00	.	.	.	3.00	3.00	.	3.00
13	.	3.00	.	.	.	.	3.00	.	3.00
14	.	.	.	.	.	.	.	.	.
15	.	1.00	.	.	.	1.00	1.00	.	1.00
16	.	3.00	.	.	.	3.00	3.00	.	3.00
17	.	3.00	.	.	.	3.00	3.00	.	2.00
18	.	1.00	.	.	.	1.00	1.00	.	1.00
19	.	3.00	.	.	.	3.00	3.00	.	3.00

Table 16-29. Tallgrass Prairie Southern Iowa Drift Plain - Herps

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	.
2	.	.	.	.	.	1.00	1.00	.	.
3	3.00	3.00	3.00	.	.	3.00	3.00	3.00	2.00
4	1.00	.	1.00	.	.	1.00	1.00	1.00	1.00
5	.	.	.	.	.	.	.	.	.
6	1.00	1.00	1.00	.	1.00	1.00	1.00	1.00	1.00
7	.	.	.	.	.	3.00	3.00	3.00	.
8	1.00	1.00	1.00	.	2.00	2.00	2.00	2.00	2.00
9	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00
10	1.00	1.00	1.00	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.
12	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00
13	.	3.00	.	.	3.00	.	3.00	.	3.00
14	.	.	.	.	.	.	.	.	.
15	1.00	1.00	1.00	.	1.00	1.00	1.00	1.00	1.00
16	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00
17	3.00	3.00	3.00	.	3.00	3.00	3.00	2.00	2.00
18	1.00	1.00	1.00	.	1.00	1.00	1.00	1.00	1.00
19	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00

Table 16-30. Tallgrass Prairie Iowan Surface - Herps

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	.
2	.	.	.	.	.	1.00	1.00	.	.
3	3.00	3.00	3.00	.	.	3.00	3.00	3.00	2.00
4	1.00	.	1.00	.	.	1.00	1.00	1.00	1.00
5	.	.	.	.	.	.	.	.	.
6	1.00	1.00	1.00	.	1.00	1.00	1.00	1.00	1.00
7	.	.	.	.	.	3.00	3.00	3.00	.
8	1.00	1.00	1.00	.	2.00	2.00	2.00	2.00	2.00
9	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00
10	1.00	1.00	1.00	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.
12	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00
13	.	3.00	.	.	3.00	.	3.00	.	3.00
14	.	.	.	.	.	.	.	.	.
15	1.00	1.00	1.00	.	1.00	1.00	1.00	1.00	1.00
16	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00
17	3.00	3.00	3.00	.	3.00	3.00	3.00	2.00	2.00
18	1.00	1.00	1.00	.	1.00	1.00	1.00	1.00	1.00
19	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00	3.00

Table 16-31. Tallgrass Prairie Northwest Iowa Plains - Herps

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	.	.	3.00	.	.	3.00	3.00	.	.
2	.	.	.	.	.	1.00	1.00	.	.
3	.	.	3.00	.	.	3.00	3.00	.	2.00
4	.	.	1.00	.	.	1.00	1.00	.	1.00
5	.	.	.	.	.	.	.	.	.
6	.	.	1.00	.	.	1.00	1.00	.	1.00
7	.	.	.	.	.	3.00	3.00	.	.
8	.	.	1.00	.	.	2.00	2.00	.	2.00
9	.	.	3.00	.	.	3.00	3.00	.	3.00
10	.	.	1.00	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.
12	.	.	3.00	.	.	3.00	3.00	.	3.00
13	.	.	.	.	.	.	3.00	.	3.00
14	.	.	.	.	.	.	.	.	.
15	.	.	1.00	.	.	1.00	1.00	.	1.00
16	.	.	3.00	.	.	.	3.00	.	3.00
17	.	.	3.00	.	.	3.00	3.00	.	2.00
18	.	.	1.00	.	.	1.00	1.00	.	1.00
19	.	.	3.00	.	.	3.00	3.00	.	3.00

16-5 Terrestrial Stresses by Region - Land Snails (Prairie to Hardwood Transition Region Only)

Stress Key:
1 = Conversion to row crops
2 = Conversion to non-native grasses
3. = Conversion for residential use
4. = Conversion for non-farming industrial use
5. = Excessive recreational use damage
6. = Improper grazing
7. = Fire suppression
8. = Fire use
9. = Road construction
10. = Timber harvest
11. = Invasion of non-native species
12. = Pesticide/herbicide use
13. = Drainage
14. = Flooding caused by dams
15. = Disease/pathogens/insect
16. = Fragmentation
17. = Loss of connectivity
18. = Climate change
19. = Absence of habitat

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 16-32. Prairie to Hardwood Transition - Land Snails

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	1.00	.	1.00	.	.	.	.	.	3.00
2	1.00	.	1.00	.	.	.	.	.	3.00
3	1.50	.	2.00	.	.	.	.	.	3.00
4	1.00	.	1.00	.	.	.	.	.	1.50
5	3.00	.	3.00	.	.	.	.	.	3.00
6	3.00	.	3.00	.	.	.	.	.	3.00
7	1.50	.	1.00	.	.	.	.	.	1.50
8	1.00	.	1.00	.	.	.	.	.	1.00
9	2.00	.	2.00	.	.	.	.	.	3.00
10	1.50	.	2.00	.	.	.	.	.	2.00
11	2.50	.	3.00	.	.	.	.	.	3.00
12	1.50	.	1.00	.	.	.	.	.	3.00
13	2.00	.	3.00	.	.	.	.	.	1.50
14	1.50	.	1.00	.	.	.	.	.	2.00
15	1.00	.	1.00	.	.	.	.	.	2.00
16	3.00	.	3.00	.	.	.	.	.	3.00
17	3.00	.	3.00	.	.	.	.	.	3.00
18	3.00	.	3.00	.	.	.	.	.	3.00
19	2.50	.	3.00	.	.	.	.	.	3.00
20*	3.00	.	3.00	.	.	.	.	.	3.00
21*	2.00	.	2.00	.	.	.	.	.	3.00

*Stress 20 - damage to sinkholes through siltation, Stress 21 - damage to sinkholes through contaminants

16-6. Terrestrial Stresses by Region - Butterflies

Stress Key:

1 = Conversion to row crops
2 = Conversion to non-native grasses
3. = Conversion for residential use
4. = Conversion for non-farming industrial use
5. = Excessive recreational use
6. = Improper grazing
7. = Fire suppression
8. = Fire use
9. = Road construction
10. = Timber harvest
11. = Invasion of non-native species
12. = Pesticide/herbicide use
13. = Drainage
14. = Flooding caused by dams
15. = Disease/pathogens/insect damage
16. = Fragmentation
17. = Loss of connectivity
18. = Climate change
19. = Absence of habitat

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 16-33. Loess Hills - Butterflies

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.00	2.00	3.00	2.00	3.00	2.00
2	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
3	3.00	1.00	3.00	3.00	1.00	3.00	1.00	3.00	3.00
4	2.00	1.00	2.00	2.00	1.00	1.50	1.00	2.00	1.50
5	3.00	2.00	3.00	3.00	2.00	2.00	2.00	3.00	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	1.00	2.00	2.00	2.00	3.00	2.00	3.00	2.50
8	2.00	1.00	2.00	2.00	2.00	3.00	2.00	3.00	2.00
9	2.00	2.00	2.00	2.00	2.00	1.50	2.00	2.00	1.50
10	2.00	1.00	2.00	1.00	1.00	1.00	1.00	2.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	2.00	2.00	2.00	2.00	2.00	3.00	3.00	3.00	3.00
13	1.00	2.00	1.00	1.00	2.00	1.00	2.00	1.00	1.50
14	1.00	2.00	1.00	1.00	2.00	1.50	2.00	1.00	1.00
15	1.00	1.00	1.00	1.00	1.00	1.50	1.00	1.00	1.50
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
18	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	2.00	3.00	2.00	1.00	3.00	3.00	3.00	3.00	2.00

Table 16-34. Mississippi Alluvial Plain - Butterflies

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
2	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
3	2.00	1.00	2.00	2.00	1.00	2.00	2.00	2.00	2.00
4	2.00	1.00	2.00	2.00	1.00	2.00	2.00	2.00	2.00
5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	1.00	1.00	1.00	2.00	1.00	3.00	1.00	3.00	1.00
8	2.00	2.00	2.00	2.00	2.00	3.00	2.00	2.00	2.00
9	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
10	3.00	3.00	3.00	1.00	1.00	1.00	1.00	2.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	1.00	1.00	1.00	2.00	2.00	3.00	3.00	3.00	3.00
13	2.00	3.00	2.00	2.00	3.00	3.00	3.00	2.00	2.00
14	2.00	2.00	2.00	2.00	2.00	2.00	3.00	2.00	2.00
15	3.00	3.00	3.00	2.00	2.00	2.00	2.00	2.00	2.00
16	3.00	3.00	3.00	3.00	1.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	1.00	3.00	3.00	3.00	1.00
18	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	2.00	3.00	2.00	2.00	3.00	3.00	3.00	3.00	1.00

Table 16-35. Missouri Alluvial Plain - Butterflies

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
2	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
3	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
4	2.00	1.00	2.00	2.00	1.00	2.00	1.00	2.00	2.00
5	3.00	2.00	3.00	2.00	2.00	2.00	2.00	3.00	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	1.00	2.00	2.00	1.00	3.00	2.00	3.00	2.00
8	2.00	1.00	2.00	3.00	1.00	3.00	2.00	3.00	2.00
9	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
10	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
11	3.00	3.00	3.00	3.00	.	3.00	3.00	3.00	3.00
12	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
13	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
14	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00

Table 16-36. Prairie to Hardwood Transition - Butterflies

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00	2.00
2	2.00	2.00	2.00	2.00	2.00	3.00	2.00	3.00	2.00
3	2.00	1.00	2.00	2.00	1.00	2.00	1.00	2.00	2.00
4	1.00	1.00	1.00	2.00	1.00	2.00	1.00	2.00	1.00
5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
8	2.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
9	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
10	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	2.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	3.00
13	1.00	2.00	1.00	2.00	3.00	1.00	3.00	1.00	1.00
14	1.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00	1.00
15	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
18	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	2.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	1.00

Table 16-37. Prairie Pothole - Butterflies

	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	1.00	1.00	1.00	2.00	1.00	2.00	2.00	2.00	2.00
3	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
4	1.00	2.00	2.00	2.00	1.00	1.50	1.00	1.00	1.00
5	3.00	2.00	3.00	2.00	2.00	1.50	2.00	2.00	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	1.00	1.00	1.00	2.00	1.00	3.00	2.00	3.00	1.00
8	1.00	1.00	2.00	2.00	1.00	3.00	2.00	3.00	1.00
9	2.00	2.00	2.00	2.00	2.00	2.50	2.00	2.00	2.00
10	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
13	3.00	3.00	3.00	3.00	3.00	2.00	3.00	2.00	2.00
14	2.00	3.00	2.00	2.00	3.00	2.00	3.00	2.00	2.00
15	2.00	2.00	2.00	1.00	1.00	1.50	1.00	2.00	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
18	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	2.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	1.00

Table 16-38. Tallgrass Prairie Southern Iowa Drift Plain - Butterflies

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
2	3.00	2.00	3.00	3.00	2.00	3.00	2.00	3.00	2.00
3	2.00	1.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00
4	2.00	1.00	2.00	2.00	1.00	2.00	1.00	2.00	2.00
5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	2.00	2.00	3.00	2.00	3.00	2.00	3.00	3.00
8	2.00	2.00	2.00	2.00	1.00	2.00	1.00	2.00	2.00
9	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
10	3.00	2.00	3.00	1.00	1.00	1.00	1.00	3.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	1.00	1.00	1.00	3.00	2.00	3.00	3.00	3.00	3.00
13	1.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
14	2.00	3.00	2.00	2.00	3.00	2.00	3.00	2.00	2.00
15	3.00	3.00	3.00	2.00	2.00	2.00	2.00	3.00	2.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	2.00	3.00	2.00	2.00	3.00	3.00	3.00	3.00	1.00

Table 16-39. Tallgrass Prairie Iowan Surface - Butterflies

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	3.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00
2	2.00	2.00	2.00	2.00	2.00	3.00	2.00	3.00	3.00
3	1.00	2.00	2.00	2.00	1.00	2.00	1.00	2.00	3.00
4	1.00	2.00	2.00	2.00	1.00	2.00	1.00	2.00	3.00
5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	2.00	2.00	2.00	2.00	3.00	2.00	3.00	3.00
8	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
9	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
10	2.00	2.00	2.00	1.00	1.00	1.00	1.00	2.00	1.00
11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
12	2.00	2.00	2.00	2.00	2.00	3.00	2.00	3.00	3.00
13	1.00	3.00	1.00	2.00	3.00	3.00	3.00	2.00	3.00
14	1.00	2.00	1.00	1.00	3.00	2.00	3.00	1.00	2.00
15	2.00	2.00	2.00	2.00	1.00	2.00	2.00	2.00	3.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	2.00	2.00	2.00	2.00	2.00	3.00	3.00	3.00	1.00

Table 16-40. Tallgrass Prairie Northwest Iowa Plains - Butterflies

Stress	FRST	WET FRST	WD LND	SHRB	WET SHRB	WARM HERB	HERB WET	SVAN	AG
1	2.00	2.00	2.00	3.00	2.00	3.00	2.00	3.00	2.00
2	2.00	2.00	2.00	3.00	2.00	3.00	3.00	3.00	3.00
3	2.00	1.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00
4	2.00	1.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00
5	2.00	2.00	2.00	2.00	1.00	2.00	1.00	2.00	2.00
6	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
7	2.00	1.00	2.00	2.00	2.00	2.50	2.00	3.00	2.00
8	2.00	1.00	2.00	3.00	2.00	3.00	2.00	3.00	2.00
9	2.00	2.00	2.00	2.00	2.00	2.50	2.00	2.00	2.00
10	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
11	3.00	3.00	3.00	3.00	3.00	2.50	3.00	3.00	3.00
12	2.00	2.00	2.00	2.00	2.00	3.00	2.00	3.00	3.00
13	2.00	3.00	2.00	2.00	3.00	2.00	3.00	3.00	3.00
14	1.00	1.00	1.00	1.00	2.00	1.50	2.00	2.00	1.00
15	1.00	1.00	1.00	1.00	1.00	1.50	1.00	1.00	1.00
16	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
18	1.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
19	1.00	3.00	2.00	2.00	3.00	3.00	3.00	3.00	1.00

APPENDIX 17. Aquatic Habitat Stresses by Region

17-1 Aquatic Stresses by Region - Fish and Mussels

Stress Key:

1. = Siltation
2. = Chemical pollution
3. = Accelerated eutrophication
4. = Channelization
5. = Man-made dams
6. = Permanent drainage
7. = Artificial water level manipulation
8. = Shoreline alteration
9. = Invasive/non-native species
10. = Disease/pathogens
11. = Excessive recreational use
12. = Climate change
13. = Loss of riparian habitat
14. = Loss of shoreline vegetation
15. = Loss of submergent/emergent plants
16. = Shoreline/bank erosion
17. = Streambed degradation

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 17-1. Loess Hills -Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.67
2	2.00	2.00	2.00	2.00	1.50	1.00	1.00	1.00	1.33
3	2.67	2.67	2.67	3.00	3.00	3.00	3.00	3.00	2.67
4	2.33	2.67	3.00	2.00	3.00	2.00	1.00	1.00	1.00
5	2.00	2.33	2.67	3.00	1.50	1.00	3.00	1.00	1.00
6	1.67	1.67	2.33	2.50	3.00	3.00	1.00	2.00	1.00
7	1.67	1.67	1.67	1.50	1.50	1.50	1.00	1.50	1.00
8	3.00	3.00	3.00	2.50	2.50	2.50	2.00	2.00	1.67
9	3.00	2.33	2.00	2.50	2.50	2.00	3.00	2.50	2.33
10	1.33	1.00	1.33	1.50	1.50	1.50	2.00	1.50	1.33
11	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.33
12	1.33	1.33	1.33	1.00	1.50	1.50	1.00	1.00	1.33
13	2.33	2.67	2.67	3.00	3.00	2.50	3.00	2.50	2.00
14	3.00	3.00	3.00	3.00	2.50	2.50	2.00	2.00	1.33
15	2.33	2.67	2.67	3.00	2.50	2.00	2.00	1.50	1.00
16	3.00	3.00	3.00	2.50	2.50	2.00	2.00	2.00	1.33
17	3.00	3.00	3.00	3.00	3.00	3.00	1.00	1.00	1.00

Table 17-2. Mississippi Alluvial Plain - Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	2.67	.	.	.
2	2.00	2.00	2.00	2.50	2.00	2.00	.	.	.
3	2.50	2.50	2.50	3.00	2.50	2.50	.	.	.
4	2.33	2.67	2.67	3.00	.	.	.	.	.
5	2.33	3.00	2.67	3.00	.	.	.	.	.
6	1.50	2.50	3.00	3.00	1.00	2.00	.	.	.
7	3.00	2.00	2.00	3.00	3.00	3.00	.	.	.
8	2.33	2.33	2.33	3.00	2.00	2.50	.	.	.
9	3.00	3.00	2.67	3.00	3.00	3.00	.	.	.
10	1.33	1.33	1.33	2.00	1.33	1.33	.	.	.
11	1.33	1.33	1.00	2.50	1.67	1.33	.	.	.
12	1.00	1.00	1.00	2.00	1.00	1.00	.	.	.
13	2.00	2.33	2.33	2.50	2.00	1.67	.	.	.
14	1.00	1.50	1.50	2.00	1.33	1.33	.	.	.
15	2.50	2.00	2.00	3.00	2.33	2.00	.	.	.
16	2.00	2.33	2.67	3.00	1.50	2.00	.	.	.
17	2.00	2.33	2.33	3.00	1.00	1.00	.	.	.

Table 17-3. Missouri Alluvial Plain - Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	2.50	2.00	2.00	2.00	2.00	1.50	1.00	1.50	1.50
3	2.00	2.00	2.00	2.50	3.00	3.00	3.00	3.00	3.00
4	3.00	3.00	3.00	2.00	3.00	2.00	1.00	1.00	1.00
5	1.50	2.00	2.00	1.50	2.00	1.50	3.00	1.50	1.50
6	2.00	2.00	2.50	2.50	3.00	3.00	1.00	1.50	1.00
7	3.00	3.00	3.00	2.50	3.00	3.00	1.00	1.50	1.00
8	3.00	3.00	3.00	3.00	2.50	3.00	2.00	2.00	1.50
9	3.00	2.50	2.50	2.00	2.50	2.50	3.00	2.50	1.50
10	2.00	1.50	1.50	1.50	1.50	1.50	2.00	1.50	1.50
11	1.50	1.00	1.00	1.00	1.00	1.00	2.00	1.50	1.50
12	1.00	1.00	1.00	1.00	1.50	1.50	1.00	1.00	1.00
13	3.00	3.00	3.00	2.50	2.50	2.50	3.00	2.00	2.00
14	3.00	3.00	3.00	2.50	2.50	2.50	2.00	1.50	1.50
15	3.00	3.00	3.00	3.00	3.00	3.00	2.00	1.50	1.00
16	3.00	3.00	3.00	3.00	2.50	2.00	2.00	2.00	2.00
17	3.00	3.00	3.00	3.00	3.00	3.00	1.00	1.00	1.00

Table 17-4. Prairie to Hardwood Transition - Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.50	1.50
3	2.33	2.50	2.50	2.67	3.00	3.00	3.00	3.00	3.00
4	2.33	2.50	3.00	1.67	2.00	2.00	1.00	1.00	1.00
5	2.67	2.00	1.00	2.67	1.50	1.50	1.00	1.00	1.00
6	2.00	2.00	2.00	1.33	3.00	2.50	2.00	1.50	1.50
7	2.00	2.00	2.00	2.33	2.00	2.50	2.00	1.50	1.50
8	2.67	2.50	2.00	2.33	1.50	2.00	1.00	1.00	1.00
9	3.00	2.00	1.00	2.67	2.50	2.50	2.00	2.00	2.00
10	1.67	1.50	1.00	1.33	1.50	1.50	1.00	1.00	1.00
11	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	2.67	3.00	3.00	2.67	2.00	2.50	2.00	1.50	1.50
14	2.67	3.00	3.00	2.33	2.00	1.50	2.00	1.50	1.50
15	1.67	2.00	2.00	2.00	2.00	1.50	1.00	1.50	1.50
16	2.67	3.00	3.00	2.00	1.00	1.00	2.00	1.00	1.00
17	2.00	2.00	2.00	1.33	1.50	1.50	1.00	1.00	1.00

Table 17-5. Prairie Pothole - Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	2.75	3.00	3.00	3.00	2.50	.	2.33	2.67	2.25
2	1.50	1.75	1.75	1.67	2.00	.	1.33	1.33	1.75
3	1.75	1.75	2.00	2.33	2.00	.	2.67	2.33	2.00
4	1.25	2.50	2.50	1.50	.	.	1.00	1.00	1.00
5	1.50	1.25	1.50	1.50	1.00	.	1.00	1.00	1.00
6	1.75	1.75	1.75	1.33	1.50	.	1.00	1.00	1.00
7	1.00	1.00	1.00	1.00	1.00	.	1.00	1.00	1.00
8	1.67	1.67	2.33	1.67	2.50	.	2.33	1.67	1.25
9	1.75	1.75	1.50	1.67	1.50	.	2.00	2.33	2.00
10	1.00	1.00	1.00	1.33	1.00	.	1.00	1.67	1.25
11	1.00	1.25	1.00	1.33	1.00	.	2.67	1.67	1.25
12	1.33	1.33	1.67	1.00	1.00	.	1.33	1.00	1.33
13	2.50	2.75	2.75	2.33	1.50	.	2.00	1.33	1.25
14	2.00	2.33	2.67	1.67	2.00	.	2.67	1.67	1.25
15	1.50	1.75	2.00	2.00	1.50	.	2.67	1.00	1.00
16	2.50	2.75	2.50	2.00	1.00	.	1.67	2.33	1.50
17	2.00	2.00	2.25	1.00	1.00	.	1.00	1.00	1.00

Table 17-6. Tallgrass Prairie Southern Iowa Drift Plain - Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	2.57	2.67	2.50	3.00	2.67	3.00	3.00	2.75	2.67
2	1.71	1.83	1.83	1.67	2.00	2.00	1.00	1.25	1.67
3	2.14	2.33	2.33	2.67	3.00	3.00	3.00	2.50	2.33
4	1.86	2.67	2.67	1.50	3.00	2.50	1.00	1.00	1.00
5	1.57	1.67	1.83	2.25	2.00	1.50	3.00	1.00	1.00
6	1.71	1.67	1.83	1.40	3.00	3.00	1.00	1.00	1.00
7	1.83	1.40	1.40	1.67	2.33	2.75	1.00	1.00	1.00
8	2.50	2.40	2.40	2.17	2.33	2.25	2.00	2.00	1.83
9	2.43	2.17	2.00	2.50	3.00	2.75	3.00	2.50	1.83
10	1.29	1.17	1.17	1.33	1.67	1.50	2.00	1.25	1.17
11	1.00	1.00	1.00	1.17	1.00	1.00	2.00	1.50	1.17
12	1.17	1.20	1.20	1.00	1.33	1.25	1.00	1.00	1.20
13	2.00	2.67	2.83	2.00	2.33	2.00	3.00	1.75	1.67
14	2.17	2.40	2.40	2.00	2.33	1.75	2.00	1.75	1.67
15	1.86	1.83	1.67	2.50	2.33	2.00	2.00	1.50	1.33
16	2.43	2.67	2.83	2.33	2.00	1.50	2.00	2.25	1.83
17	2.14	2.50	2.33	2.00	2.50	2.00	1.00	1.00	1.00

Table 17-7. Tallgrass Prairie Iowan Surface - Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	2.75	2.67	2.67	3.00	3.00	3.00	.	2.67	2.67
2	1.75	1.67	1.67	1.50	1.67	1.67	.	1.33	1.33
3	2.25	2.33	2.33	2.75	3.00	3.00	3.00	2.67	2.67
4	2.00	2.00	2.33	2.00	2.67	2.50	.	1.00	1.00
5	2.50	2.33	1.00	2.00	1.50	1.50	.	1.00	1.00
6	2.00	2.33	2.33	1.33	3.00	3.00	.	1.00	1.00
7	1.67	1.00	1.00	2.00	1.50	2.00	.	1.00	1.00
8	2.00	1.50	1.50	2.00	2.00	2.50	.	1.00	1.00
9	2.50	2.00	1.67	2.75	2.67	2.67	.	2.33	2.00
10	1.25	1.00	1.00	1.25	1.33	1.33	.	1.00	1.00
11	1.00	1.00	1.00	1.00	1.00	1.00	.	1.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	.	1.00	1.00
13	2.50	2.67	2.67	2.50	2.67	2.67	.	1.33	1.33
14	2.25	2.33	2.33	2.50	2.67	2.33	.	1.67	1.67
15	1.25	1.00	1.00	1.75	2.33	2.33	.	1.67	1.00
16	2.50	2.67	2.67	2.00	1.33	1.33	.	2.00	1.67
17	1.75	1.67	1.67	1.50	1.50	1.50	.	1.00	1.00

Table 17-8. Tallgrass Prairie Northwest Iowa - Fish and Mussels

Stress	RIVER	STREAM	CREEK	IMPOUND	BACK WATER	OXBOW	NAT LAKE	CON LAKE	POND
1	2.50	2.00	2.00	2.50	2.50	2.00	3.00	2.50	2.50
2	2.50	2.50	2.50	1.50	1.50	1.00	2.00	2.00	2.00
3	1.50	1.50	1.50	2.00	2.00	3.00	3.00	2.50	2.50
4	2.50	3.00	3.00	1.00	.	.	.	.	.
5	1.00	1.50	1.50	1.00	.	.	.	1.00	1.00
6	2.00	2.00	2.50	1.00	2.00	.	.	1.00	1.00
7	2.00	1.00	1.00	1.00	1.00	3.00	1.00	1.50	1.00
8	3.00	2.00	1.00	1.50	2.50	2.00	3.00	1.00	1.00
9	3.00	2.50	2.00	2.50	2.00	2.00	3.00	2.50	2.00
10	1.50	1.50	1.50	1.00	1.00	1.00	1.00	1.00	1.00
11	1.50	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00
12	1.50	1.50	2.00	1.50	1.00	1.00	1.00	1.50	1.50
13	2.50	3.00	3.00	1.50	2.50	3.00	3.00	2.00	1.00
14	3.00	3.00	2.00	1.00	2.00	2.00	3.00	1.50	1.00
15	1.50	2.00	1.50	1.50	2.00	2.00	3.00	1.50	1.00
16	3.00	3.00	2.50	2.00	1.50	2.00	2.00	2.00	1.50
17	2.50	1.50	2.00	1.00	1.00	.	.	.	.

17-2. Aquatic Stresses by Region - Dragonfly and Damselfly

Stress Key:

1. = Siltation
2. = Chemical pollution
3. = Accelerated eutrophication
4. = Channelization
5. = Man-made dams
6. = Permanent drainage
7. = Artificial water level manipulation
8. = Shoreline alteration
9. = Invasive/non-native species
10. = Disease/pathogens
11. = Excessive recreational use
12. = Climate change
13. = Loss of riparian habitat
14. = Loss of shoreline vegetation
15. = Loss of submergent/emergent plants
16. = Shoreline/bank erosion
17. = Streambed degradation

Stress Level: 1 = Low; 2 = Moderate; 3 = High

Table 17-9. Loess Hills - Dragonfly and Damselfly

Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	.	3.00
2	2.00	2.00	2.00	2.00	2.00	.	2.00
3	1.00	2.00	2.00	2.00	2.00	.	2.00
4	2.00	2.00	2.00	.	.	.	.
5	1.00	2.00	2.00	.	.	.	.
6	.	.	.	.	.	.	3.00
7	.	.	.	.	.	.	2.00
8	1.00	1.00	1.00	.	.	.	.
9	1.00	1.00	1.00	1.00	2.00	.	3.00
10	1.00	1.00	1.00	1.00	1.00	.	1.00
11	1.00	1.00	1.00	2.00	1.00	.	1.00
12	1.00	1.00	1.00	1.00	1.00	.	1.00
13	2.00	2.00	2.00	.	1.00	.	1.00
14	2.00	2.00	2.00	1.00	1.00	.	3.00
15	3.00	3.00	3.00	3.00	3.00	.	3.00
16	3.00	3.00	3.00	2.00	1.00	.	1.00
17	3.00	3.00	3.00	3.00	3.00	.	3.00

Table 17-10. Mississippi Alluvial Plain - Dragonfly and Damselfly

Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	.	3.00
2	3.00	3.00	3.00	3.00	3.00	.	3.00
3	2.00	2.00	2.00	2.00	3.00	.	3.00
4	2.00	2.00	2.00	.	.	.	.
5	.	.	.	.	.	.	.
6	.	.	.	.	.	.	3.00
7	.	.	.	2.00	.	.	2.00
8	3.00	2.00	2.00	.	.	.	.
9	3.00	3.00	3.00	3.00	3.00	.	3.00
10	1.00	1.00	1.00	1.00	1.00	.	1.00
11	3.00	1.00	1.00	2.00	1.00	.	1.00
12	1.00	1.00	1.00	1.00	1.00	.	1.00
13	2.00	2.00	2.00	.	1.00	.	1.00
14	2.00	2.00	2.00	1.00	1.00	.	3.00
15	3.00	3.00	3.00	3.00	3.00	.	3.00
16	3.00	3.00	3.00	2.00	1.00	.	1.00
17	3.00	3.00	3.00	3.00	3.00	.	3.00

Table 17-11. Missouri Alluvial Plain - Dragonfly and Damselfly

Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	.	3.00
2	3.00	3.00	3.00	3.00	3.00	.	3.00
3	2.00	2.00	2.00	2.00	3.00	.	3.00
4	2.00	2.00	2.00	.	.	.	.
5	.	.	.	.	.	.	.
6	.	.	.	.	.	.	3.00
7	3.00	.	.	2.00	.	.	2.00
8	3.00	2.00	2.00	.	.	.	.
9	3.00	3.00	3.00	3.00	3.00	.	3.00
10	1.00	1.00	1.00	1.00	1.00	.	1.00
11	3.00	1.00	1.00	2.00	2.00	.	1.00
12	1.00	1.00	1.00	1.00	1.00	.	1.00
13	2.00	2.00	2.00	.	1.00	.	1.00
14	2.00	2.00	2.00	1.00	1.00	.	3.00
15	3.00	3.00	3.00	3.00	3.00	.	3.00
16	3.00	3.00	3.00	2.00	1.00	.	1.00
17	3.00	3.00	3.00	3.00	3.00	.	3.00

Table 17-12. Prairie to Hardwood Transition - Dragonfly and Damselfly

Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	3.00	3.00	3.00	3.00	3.00	3.00	3.00
3	1.00	2.00	2.00	2.00	2.00	2.00	2.00
4	1.00	1.00	1.00	.	.	.	.
5	.	1.00	1.00	.	.	.	.
6	.	.	.	.	.	.	3.00
7	.	.	.	1.00	.	.	2.00
8	1.00	1.00	1.00	.	.	3.00	.
9	3.00	3.00	3.00	3.00	3.00	3.00	3.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	3.00	3.00	2.00	3.00	1.00	3.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	2.00	2.00	2.00	1.00	1.00	1.00	1.00
14	1.00	1.00	1.00	1.00	1.00	2.00	3.00
15	3.00	3.00	3.00	3.00	3.00	3.00	3.00
16	3.00	3.00	3.00	2.00	1.00	2.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Table 17-13. Prairie Pothole - Dragonfly and Damselfly

Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	3.00	3.00	3.00	3.00	3.00	3.00	3.00
3	1.00	2.00	2.00	2.00	2.00	2.00	2.00
4	3.00	3.00	3.00	.	.	.	.
5	.	1.00	1.00	.	.	.	.
6	.	.	.	.	.	.	3.00
7	.	.	.	1.00	.	.	2.00
8	3.00	3.00	3.00	.	.	3.00	.
9	3.00	3.00	3.00	3.00	3.00	3.00	3.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	3.00	1.00	1.00	3.00	1.00	3.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	3.00	3.00	3.00	2.00	3.00	2.00	1.00
14	3.00	3.00	3.00	2.00	2.00	2.00	3.00
15	3.00	3.00	3.00	3.00	3.00	3.00	3.00
16	3.00	3.00	3.00	2.00	1.00	2.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Table 17-14. Tallgrass Prairie Iowan Surface - Dragonfly and Damselfly

Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	3.00	3.00	3.00	3.00	3.00	3.00	3.00
3	1.00	2.00	2.00	2.00	2.00	2.00	2.00
4	2.00	2.00	2.00	.	.	.	.
5	.	1.00	1.00	.	.	.	.
6	.	.	.	.	.	.	3.00
7	.	.	.	1.00	.	.	2.00
8	1.00	1.00	1.00	.	.	3.00	.
9	3.00	3.00	3.00	3.00	3.00	3.00	3.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	1.00	1.00	1.00	3.00	1.00	3.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	2.00	2.00	2.00	1.00	1.00	1.00	1.00
14	2.00	2.00	2.00	1.00	1.00	3.00	3.00
15	3.00	3.00	3.00	3.00	3.00	3.00	3.00
16	3.00	3.00	3.00	2.00	1.00	2.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Table 17-15. Tallgrass Prairie Southern Iowa Drift Plain - Dragonfly and Damselfly

Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	3.00	3.00	3.00	3.00	3.00	3.00	3.00
3	1.00	2.00	2.00	2.00	2.00	2.00	2.00
4	2.00	2.00	2.00	.	.	.	.
5	1.00	2.00	2.00	.	.	.	.
6	.	.	.	.	.	.	3.00
7	.	.	.	2.00	.	.	2.00
8	1.00	1.00	1.00	.	.	3.00	.
9	3.00	3.00	3.00	3.00	3.00	3.00	3.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	1.00	1.00	1.00	3.00	1.00	3.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	2.00	2.00	2.00	1.00	1.00	1.00	1.00
14	2.00	2.00	2.00	1.00	1.00	3.00	3.00
15	3.00	3.00	3.00	3.00	3.00	3.00	3.00
16	3.00	3.00	3.00	2.00	1.00	2.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Table 17-16. Tallgrass Prairie Northwest Iowa Plains - Dragonfly and Damselfly

Stress	RIVER	STREAM	CREEK	IMPOUND	BACKWTR	LAKE	POND
1	3.00	3.00	3.00	3.00	3.00	3.00	3.00
2	3.00	3.00	3.00	3.00	3.00	3.00	3.00
3	1.00	2.00	2.00	1.00	2.00	2.00	2.00
4	2.00	2.00	2.00	.	.	.	.
5	.	1.00	1.00	.	.	.	.
6	.	.	.	.	.	.	3.00
7	.	.	.	1.00	.	.	2.00
8	1.00	1.00	1.00	.	.	3.00	.
9	3.00	3.00	3.00	3.00	3.00	3.00	3.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	1.00	1.00	1.00	3.00	1.00	3.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	2.00	2.00	2.00	1.00	1.00	1.00	1.00
14	2.00	2.00	2.00	1.00	1.00	3.00	3.00
15	3.00	3.00	3.00	3.00	3.00	3.00	3.00
16	3.00	3.00	3.00	2.00	1.00	2.00	1.00
17	3.00	3.00	3.00	3.00	3.00	3.00	3.00