

Section 7 of the Endangered Species Act - Guidance for NDDOT Projects -

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I. BACKGROUND

The National Environmental Policy Act (NEPA) and Section 7 Endangered Species Act (ESA) processes interact in the early phases of the environmental analysis of a project. Section 7 of the ESA requires federal agencies to ensure that any action authorized, funded, or carried out by the respective agency is “not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of (critical) habitat”. In order to receive an environmental approval [Categorical Exclusion (CatEx), Finding of No Significant Impact (FONSI) or Record of Decision (ROD)] for highway improvement projects, the requirements of Section 7 of the ESA need to be addressed. Section 7 compliance results in one of three determinations for listed species and designated critical habitat.

1 -No Effect: Means the ESA-listed species or designated critical habitat will not be directly or indirectly affected by the project. No consultation with the USFWS is required for this determination.

- No effect determinations are appropriate when a species or critical habitat is not listed in the county (or counties) for a proposed project. Conversely, if the species is listed for a county, a no effect determination is appropriate if there is no suitable or critical habitat for the species near the project, or due to the scope of the project; the species or critical habitat would not be exposed to direct or indirect effects.

- Direct Effects: Caused by the action (project) and occur at the same time of the action.
 - Ex. Noise or visual disturbances causing a species to avoid/abandon habitat.

- Indirect Effects: Caused by the action, but occur later in time.
 - Ex. Noxious weeds establishing after a project has been constructed, lowering habitat quality for a species or critical habitat.

- No effect determinations may also be appropriate if the species may occur near the project seasonally, but the project would be timed to avoid their presence, thus the species would not be exposed to direct or indirect effects.

-No effect determinations are documented on the NDDOT Affect Determination table, and in some cases a Section 7 Affect Determination Package (if no effect for all species/critical habitat).

2 -May Affect, Not Likely to Adversely Affect: Means that the species is found within the county (or counties), suitable habitat is present (or designated critical habitat), and all potential direct and indirect effects are discountable, insignificant, or beneficial. This determination results in “informal consultation” with the USFWS and a biological assessment is necessary (either programmatic or project specific).

- Discountable: Effects that are extremely unlikely to occur.

- Insignificant: Effects that are undetectable, not measureable, or so minor they cannot be meaningfully evaluated.

-Beneficial: Effects that have an immediate positive effect without any adverse effects to species or habitat.

- May Affect, Not Likely to Adversely Affect determinations are documented with a biological assessment, and concurrence is needed from the USFWS in the form of a concurrence letter (either project-specific or programmatic).

3 -May Affect, Likely to Adversely Affect: Means that one or more individuals of an ESA-listed species or one or more essential features of critical habitats are likely to be exposed to the projects actions and are likely to result in “take” of a species or adverse effects to critical habitat. This determination results in “formal consultation” with the USFWS, and requires a project specific biological assessment.

-Take is defined as to harass, harm, pursue, hunt, shoot, wound, trap, capture, collect, or attempt to engage in any such conduct. Take is a violation of the ESA even if unintentional.

-Harm is further defined as any act that actually kills or injures fish or wildlife. This includes habitat modification or degradation that results in death or injury to listed species by impairing essential behavioral patterns such as breeding, spawning, migrating, feeding or sheltering.

- Harass is further defined as an intentional or negligent act which creates the likelihood of injury to wildlife by annoying it to such an extent as to disrupt normal behavioral patterns.

-May Affect, Likely to Adversely Affect determinations are documented with a biological assessment, and concurrence is needed from the USFWS in the form of a biological opinion.

In order to streamline the Section 7 process for routine transportation construction projects that “may affect, but are not likely to adversely affect” listed species or critical habitat, the North Dakota Department of Transportation (NDDOT) in cooperation with the Federal Highway Administration (FHWA) and U.S. Fish and Wildlife Service (USFWS) have developed a Programmatic Biological Assessment (PBA). Programmatic Biological Assessments are particularly useful for meeting ESA requirements for uncomplicated and non-controversial low impact projects. Only projects that result in “may affect, but not likely to adversely affect” determinations are covered by this PBA (see definitions above). Projects with adverse effects (i.e. take), require a project-specific biological assessment.

No effect determinations can be covered either within the NDDOT Affect Determination Table or Section 7 Affect Determination Package (if all species and critical habitat are “no effect”). No effect determinations can also be covered under the PBA (e.g. if one or more species or critical habitat is “may affect” a biological assessment is necessary, however, some species or critical habitat may not be exposed to the project, thus no effect). As part of the development of the PBA, a Memorandum of Understanding (MOU) was created between FHWA and NDDOT, which delegates informal Section 7 consultation responsibilities from FHWA to the NDDOT, allowing the NDDOT to make “no effect” determinations and consult (informally) with USFWS on FHWA’s behalf. Informal consultations will be conducted under the PBA or through project-specific biological assessments. Any Section 7 consultations requiring formal consultation must be conducted by FHWA.

II. GUIDANCE

A. Section 7 Consultation Process

1. Environmental Document - Threatened and Endangered Species

For Categorical Exclusion by Definition (CED) Projects

If the project can be processed as a Categorical Exempt by Definition (CED) Class II Action, typically there will be “No Effect” to any listed species or critical habitat. However, there may be instances where further review would be required for several species based on the type of work or proximity to designated critical habitat. The following work activities will trigger further review of the project for potential effects to listed species or designated critical habitat.

- If work will occur within 0.5 miles of designated critical habitat, further review will be required for either the piping plover, Dakota skipper, or Poweshiek skipperling (see links for designated critical habitat provided in Section II of this document).
- If above ground utilities (overhead wires) located in rural areas will need to be adjusted (raised/relocated) as a result of the project, further review will be required for the whooping crane.
- If the project involves tree removals or structure (bridge, box culvert, cattle pass, outbuildings) work, further review for the northern long-eared bat will be required.

If further review is required for these species and/or designated critical habitat, a Section 7 Affect Determination Package or in some cases a programmatic biological assessment would be required (see following guidance on how to prepare these documents). Any questions on what document is appropriate can be directed to the ETS biologist (701-328-2592 or gschonert@nd.gov). If the project requires structure work or tree removals and the northern long-eared bat requires further review, refer to NDDOT Guidance for the Northern Long-Eared Bat, Appendix D.

<http://www.dot.nd.gov/manuals/design/designmanual/reference-forms.htm>

For All Other Projects (DCE, PCE, or EA, EIS)

A NDDOT Threatened/Endangered/Proposed/Candidate Species, and Critical Habitat Affect Determination Table (NDDOT Affect Determination Table) has been developed to facilitate the Section 7 consultation process. The Affect Determination Table can be found at the end of this document (Appendix A).

The Affect Determination Table should be completed by the environmental document author and is to be inserted into the Environmental Impacts section of the environmental document after the T & E discussion if a “No Effect” determination has been reached for all species and critical habitats. *Note - If a biological assessment is required (either programmatic or project*

specific), the NDDOT/FHWA PBA project submittal approval page or project specific USFWS concurrence letter or biological opinion should be inserted into the document in place of the Affect Determination Table. If the FHWA/USFWS Programmatic Project Submittal Page or USFWS 4(d) Rule Streamlined Consultation Form is used, it should be attached to the NDDOT Affect Determination Table.

The Affect Determination Table should be landscape orientation. The Affect Determination Table should be filled out as follows:

a) Project Information

Fill out the project number, PCN, location, and county (or counties) for the subject project. If a project crosses county lines, one table is sufficient; however, ensure all listed species and critical habitat are accounted for. In the additional documentation column indicate which counties the species are found in if the table is to include more than one county.

b) Determination

Identify the presence of the appropriate species and/or critical habitat for the county where the project is located.

A county list of threatened and endangered species (and critical habitat) can be found at the following link:

<https://www.fws.gov/northdakotafieldoffice/SEtable.pdf>

Maps of piping plover critical habitat units can be found at the following link:

<https://www.fws.gov/mountain-prairie/es/pipingPlover.php>

Maps of Dakota skipper/Poweshiek skipperling critical habitat units can be found at the following link:

<https://www.fws.gov/midwest/Endangered/insects/dask/finalch.html>

Shapefiles of critical habitat units can be found and downloaded at the following link:

<http://ecos.fws.gov/ecp/report/table/critical-habitat.html>

The following web application can be used to search for critical habitats in relation to project locations:

http://gis.dot.nd.gov/external/ge_html/?viewer=wildlifemap

- Click on the layer icon on the bottom left hand corner of the web application.
- Click on the layer for Designated Critical Habitats (0.5 mile buffer can be turned off).
- Search for your project location and determine if critical habitat is located near the project (aerial imagery can be turned on as well).

The USFWS website is evolving with different species being added or removed. If a species is listed at the link provided that is not on the Affect Determination Table, please contact the ETS biologist (through technical support for consultant projects) for direction on how to proceed.

If a species or critical habitat does not exist in the county, then indicate with an “X” in the *Determination* column that it is “**Not Present**” and no other columns need to be filled out as no further action is necessary for that species or critical habitat.

If the species or critical habitat does exist in the county, then follow the directions given in the “**Guidance**” column of the table. The Guidance will result in one of three scenarios listed below that require specific language inserted into the higher level environmental documents (EA, EIS). The Programmatic Categorical Exclusion (PCE) or Documented Categorical Exclusion (DCE) does not require the narrative since they are checklists that contain questions specific to the scenarios described.

(1) **NDDOT Biologist Review Not Required**

The species or habitat is present in the county; however, based on the scope of work activities, no further action is necessary for that species or critical habitat. Indicate an ‘X’ under “**No Effect**” in the *Determination* column and “**No**” in the “**NDDOT Biologist Review Required**” column of the table. No effect determinations are appropriate when a project will be no potential effects to listed or proposed resources (i.e. no listed species/critical habitat will be exposed to the project and its environmental effects such as noise and visual disturbances or storm water runoff, etc.).

Include the following paragraph in the environmental document (except PCE and DCE), *Environmental Impacts Section*, under the heading *Threatened & Endangered Species* if all species and/or critical habitat received a “**No Effect**”:

The US Fish & Wildlife Service (USFWS) website indicated that # species and # critical habitat occur in XX county. These include the *endangered names*; as well as the *threatened names*, *proposed species*, *candidate species*, and *designated critical habitat*. Based on the scope of work, this project will have “No Effect” on the listed, proposed or candidate species, or critical habitat. *Please refer to Table X, Affect Determination Table.*

(2) **NDDOT Biologist Review Required -**

The species or habitat is present in the county, and based on the scope of work activities, NDDOT Biologist Review is required for one or more species or critical habitat. Indicate an “X” under “Yes” in the “NDDOT Biologist Review Required” column. A Section 7 Affect Determination Package will then be required for the species or critical habitat that requires further review (see below). A template **Section 7 Affect Determination** letter (format and content) for the required project information can be found towards the end of this document (Appendix B). After a Section 7 Package has been prepared, indicate an ‘X’ under the “**Additional Documentation Included**” column of the Affect Determination table for each species or critical habitat included in the Section 7 Package.

For consultant projects: The environmental document author will need to provide project, species, habitat information, maps, and rationale for a “No Effect” determination to the ETS biologist (through technical support) in the form of a single pdf document (Section 7 Affect Determination Package) via email. The NDDOT ETS biologist can assist in if a “No Effect” determination is appropriate or if a biological assessment is necessary prior to preparing a Section 7 Affect Determination Package. The ETS biologist will review prior to draft environmental document submittal and will sign the Section 7 Affect Determination Package if a No Effect determination is appropriate.

For internal projects: The environmental document author will need to provide project information and maps to the ETS biologist in the form of a word document (Section 7 Affect Determination Package). The ETS biologist will determine if a “No Effect” determination is appropriate and will add species, habitat information and rationale for a “No Effect” determination, or will determine if a biological assessment is needed. The ETS biologist will complete and sign the Section 7 Affect Determination Package or will request that a biological assessment (either programmatic or project-specific) be prepared. See following sections for more information on biological assessments.

If a No Effect determination is not appropriate for one or more species or designated critical habitat, a **(3) Biological Assessment will be required.**

If a No Effect determination has been obtained for all species or critical habitat, include the following paragraph in the environmental document (except PCE and DCE), *Environmental Impacts Section*, under the heading *Threatened & Endangered Species* if **all** species and/or critical habitat received a “No Effect”:

No Effect – Indicate “No Effect” on the table and no further action is necessary for that species or critical habitat. Include the following paragraph in the environmental document (except PCE and DCE) in the *Environmental Impacts Section*, under the heading *Threatened & Endangered Species* if **all** of the species and/or critical habitats under review received a “No Effect”:

The US Fish & Wildlife Service (USFWS) website indicated that # species occur in XX county. Based on the scope of work identified within the known parameters in the table and the additional documentation provided to the NDDOT ETS biologist for the (provide the name(s) of the species and/or critical habitat that a NDDOT determination was received for), it was determined that this project will have “No Effect” on the listed, proposed or candidate species, or critical habitat within the project area. Please refer to Table X, NDDOT Affect Determination Table.

Include the signed Section 7 Affect Determination Package in the environmental document Appendix.

Northern Long-Eared Bat Guidance: If a “No Effect” determination cannot be reached for the northern-long eared bat (NLEB), there are three ways in which to achieve Section 7 compliance for this species. Refer to Appendix D for guidance on how to fulfill Section 7 ESA requirements for the NLEB.

(3) **Biological Assessment Required** – In some cases NDDOT projects “May Affect” species or critical habitat. If this is the case, a biological assessment will be required. The NDDOT (or consultant) will be tasked with preparing a biological assessment to describe the project’s effects to listed species/critical habitat for FHWA/NDDOT to submit to USFWS. Most projects requiring a biological assessment will fit within the PBA prepared by the NDDOT and FHWA. A project submittal package will be prepared in order to use the PBA. The project submittal package can be found on the Design Manual – References and Forms page on the NDDOT website under NEPA Documentation (link provided below).

<http://www.dot.nd.gov/manuals/design/designmanual/reference-forms.htm>

Projects that fit within the scope of activities and sub-activities described within the PBA will not need project-specific review or approval from the FHWA/USFWS. Concurrence has been issued for the PBA by the USFWS. Guidance for how to use the PBA can be found in Section 4 of this document.

Any project requiring a project-specific biological assessment will need separate concurrence, or if “adverse effects” are likely, a biological opinion. If a project requires formal consultation (i.e. may affect, likely to adversely affect determination), the NDDOT (or consultant) will prepare a biological assessment and submit to FHWA. The FHWA will submit the biological assessment to USFWS, including; the project details, species information, applicable conservation measures to minimize harm, and affect determinations. If USFWS agrees with the findings, they will reply with a biological opinion.

Include the following paragraph in the environmental document (except PCE and DCE) in the *Environmental Impacts* section, under the heading *Threatened & Endangered Species*:

A biological assessment (BA) was completed in cooperation with the USFWS to determine Threatened & Endangered Species impacts as a result of the proposed project. The effect determination for these species can be found in Table X, Threatened & Endangered Species Affect Determination Table.

Threatened & Endangered Species Affect Determination Table

DETERMINATION	SPECIES/CRITICAL HABITAT
<p><i>No Effect:</i> This determination is appropriate when the proposed project would not directly or indirectly affect (neither negatively nor beneficially) a listed species or designated critical habitat. No concurrence from USFWS required.</p>	<p>[Fill in species/critical habitat]</p>
<p><i>May Affect but Not Likely to Adversely Affect:</i> This determination is appropriate when the proposed project is likely to cause insignificant, discountable, or wholly beneficial effects to a listed species or designated critical habitat. Concurrence from USFWS required.</p>	<p>[Fill in species/critical habitat]</p>
<p><i>May Affect and Likely to Adversely Affect:</i> This determination is appropriate when the proposed project is likely to adversely affect a listed species or designated critical habitat. Formal consultation with USFWS required.</p>	<p>[Fill in species/critical habitat]</p>
<p><i>No Effect to proposed species, candidate species, or proposed critical habitat:</i> This determination is appropriate when the proposed project would not directly or indirectly affect (neither negatively nor beneficially) a proposed species, candidate species, or proposed critical habitat. Conferencing with USFWS not required.</p>	<p>[Fill in species/critical habitat]</p>
<p><i>May Affect but Not Likely to Jeopardize proposed species, candidate species, or proposed critical habitat:</i> This determination is appropriate when the proposed project may affect, but is not expected to jeopardize the continued existence of a proposed species, candidate species, or adversely modify proposed critical habitat. Conferencing with USFWS optional. *</p>	<p>[Fill in species/critical habitat]</p>
<p><i>Likely to Jeopardize proposed species, candidate species, or destroy or adversely modify proposed critical habitat:</i> This determination is appropriate when the proposed project is reasonably expected to jeopardize the continued existence of a proposed species, candidate species, or adversely modify proposed critical habitat. Conferencing with USFWS required.</p>	<p>[Fill in species/critical habitat]</p>

*Request voluntary conferencing in cover letter to USFWS.

Include the USFWS consultation concurrence letter in the environmental document Appendix ¹. This information will completely replace the NDDOT Threatened, Endangered, Proposed, Candidate Species and Critical Habitat Affect Determination Table.

III. Programmatic Biological Assessment

A. Programmatic Biological Assessment Documentation Process

1. Project Submittal Package

If a “No Effect” determination cannot be reached, a biological assessment will be required in order to fulfill Section 7 requirements under the ESA. For most projects that require a biological assessment, the PBA developed between FHWA and NDDOT will be used to satisfy ESA requirements. The documentation process for the Programmatic Biological Assessment (PBA) will be completed via a project submittal package, which provides details for each specific project using the PBA. The PBA and project submittal package can be found on the NDDOT references and forms page under the design manual at the following link:

<http://www.dot.nd.gov/manuals/design/designmanual/reference-forms.htm>

¹ All documentation related to Section 7 of the ESA shall be appended together in an Appendix labeled *Documentation Pertaining to Section 7 of the ESA*. For further guidance and coordination of these items contact the NDDOT, ETS, Environmental Section.

The project submittal package is a fillable pdf document that provides specific details of each individual project to be covered under the PBA, species or critical habitat found within the county (or Counties), as well as provides the appropriate affect determinations and applicable conservation measures to be used. A detailed description of the project should be given in order to ensure the project fits within the scope of the PBA. An example of a detailed project description is attached to this document (Appendix C).

For all projects using the PBA for Section 7 requirements, a kick-off meeting will be required between the parties responsible (NDDOT Design/Bridge/Local Government/Materials and Research staff or consultant) for using the PBA as well as a representative from the NDDOT Environmental and Transportation Services, and in some instances FHWA, and USFWS. For smaller projects, a phone call meeting would be appropriate. For larger projects, a sit-down meeting between the environmental document author, NDDOT ETS staff and FHWA/USFWS may be requested. The objective of this meeting is to confirm the listed species and critical habitat that may occur in the counties that the specific project under the proposed action (defined in the PBA) is located in; identify whether a specific project will fit the scope of the PBA; discuss any recommended/required fieldwork; and determine appropriate conservation measures.

Once the project (preferred alternative) has been determined, any necessary fieldwork has been completed, the project submittal package can be finalized. Maps of the proposed project and any photos from fieldwork should be included as attachments to the project submittal package.

For consultant projects:

Once a project submittal package has been completed, it will be submitted to the NDDOT ETS biologist for review, and if the project fits the scope of the programmatic biological assessment, the project submittal package will be approved/signed. If the project does not fit the scope of the PBA or adverse effects to listed species or critical habitat are anticipated, additional conservation measures or separate Section 7 consultation may be required. If adverse effects cannot be avoided, formal consultation would be necessary. The environmental document author will need to ensure that any conservation measures that are used in the project submittal package get included as environmental notes or in some cases special provisions.

In order to determine the Level III/IV Ecoregion the project falls within (Page 2 of the project submittal package), refer to the following website.

https://geodata.epa.gov/ArcGIS/rest/services/ORD/USEPA_Ecoregions_Level_III_and_IV/MapServer

The Level III/IV Ecoregion map for North Dakota can be viewed on the ArcGIS Online Map Viewer, or files can be downloaded for use in Google Earth, ArcMap, or ArcGIS Explorer. If the online map viewer is used, hover the mouse over the USEPA Ecoregions Level II and IV content

tab and click on the blue dotted line that appears below the tab. Adjust the transparency so roadways can be seen with the Ecoregions overlaid. Then determine which ecoregions the project falls within and add to the project submittal package. Descriptions of the Level III/IV Ecoregion can be found within Appendix E. The number as well as name of the Level III/IV Ecoregion(s) should be included [i.e. Northern Glaciated Plains – 42a (Missouri Coteau), 42b (Collapsed Glacial Outwash, and 42c (Missouri Coteau Slope)].

If field surveys are necessary, a description the fieldwork should be included as part of the project description, or should be added as an attachment to the project submittal package. NDDOT or other agency approved survey protocols should be used. Any fieldwork for threatened and endangered species must be completed by a qualified biologist (4 year degree in natural resources – wildlife management, zoology, or closely related degree, and must be familiar with the threatened and endangered species of North Dakota and their habitat). If Dakota skipper habitat surveys are needed, a biologist with extensive botany experience is preferred. Fieldwork summaries should include the following:

- Date and time of survey(s)
- Weather conditions
- Names and qualifications of surveyors.
- Methods/Protocols
- Results
- Photographs
- Maps (if necessary to show survey locations, sightings, nest locations, suitable habitat, etc.)

Maps of the project need to be included as an attachment to the project submittal package.

- A project location map should be included that shows the entire project corridor on one map.
- A series of aerial imagery maps (ArcMap preferred) should be included to show surrounding habitat for the proposed project with an approximate 1 mile radius with any designated critical habitat near the project, historic sightings or nesting locations, or other features in regards to threatened or endangered species (i.e. whooping crane migration corridor, etc.). Note- piping plover critical habitat boundaries are not 100% accurate. Many critical habitat boundaries do not include the entirety of a lake/wetland. In these cases, the entire waterbody should be considered critical habitat, regardless of what the boundaries show.
- If tree removals or structure work is required (Northern Long Eared bat), these locations should be shown on the map series as well.

For internal projects:

The environmental document author should complete pages 1-4 of the project submittal package (aside from the Level III/IV Ecoregion, the NDDOT biologist will add this information), and then submit to the NDDOT ETS biologist. A project location map should also be included. The ETS biologist will then review the project description and will complete the rest of the project submittal package, including any other maps that may be necessary. The environmental document author will need to ensure that any conservation measures that are used in the project submittal package get included as environmental notes or in some cases special provisions.

If surveys are required, NDDOT ETS will complete the surveys and provide supporting documentation.

Any questions on the project submittal package process should be directed towards the ETS biologist (701-328-2592) or gschonert@nd.gov.

2. Documentation

Once the programmatic biological assessment has been completed and approved by the ETS biologist, the document should be stored on Filenet. The last page of the project submittal package should be included as an attachment to the environmental document. If the northern long-eared bat 4 (d) Streamlined Consultation Form or FHWA/USFWS Programmatic BA Project Submittal Form is used for a project (see NLEB Guidance – Attachment C), it should be attached to the environmental document, following the programmatic biological assessment project approval form.

APPENDIX A

NDDOT AFFECT DETERMINATION TABLE

NDDOT Threatened, Endangered, Proposed, Candidate Species and Critical Habitat Affect Determination Table

Project:		PCN:	Location:	County:			
Species	Listing	Guidance	NDDOT Biologist Review Required?		Determination		Additional Documentation Included
			Yes	No	Not Present	No Effect	
Interior Least Tern	E	NDDOT Biologist Review required for construction activities within ½ mile of the shoreline of the Missouri River System including Lake Oahe and Lake Sakakawea from April 15 through August 31.					
Whooping Crane <i>(species range includes all of North Dakota)</i>	E	NDDOT Biologist Review required for the adjustment (raising, relocating) of existing above-ground utility lines; or for newly placed poles/towers that require overhead lines/guy wires; unless the adjustments or new installations are located in a highly developed or urban area. Review also required for projects requiring major earthwork (i.e. roadway widening) in rural areas within ½ mile of cropland/wetland associations that are located within the whooping crane migration corridor. See references and forms page for a map of the whooping crane migration corridor.					
Black-footed Ferret	E	NDDOT Biologist Review required for ground disturbing activities within 100 feet of active prairie dog towns of at least 80 acres in size.					
Pallid Sturgeon	E	NDDOT Biologist Review required for work in or along the shoreline of the Missouri River (including reservoirs) and Yellowstone River Systems. Review also required for in-water work for any direct tributary (within 0.5 mile) to the Missouri River (including reservoirs) and Yellowstone River Systems.					
Gray Wolf <i>(species range includes all of North Dakota)</i>	E	NDDOT Biologist Review Required for work activities in rural areas within 1 mile of forested areas of the Turtle Mountains (Bottineau and Rolette Counties) or Pembina Gorge (Cavalier and Pembina Counties), or for new roadway construction projects (i.e. construction of a new 2 or more lane highway). Note - The gray wolf may be found throughout the state of North Dakota; however, there are no known populations and confirmed sightings are extremely rare. All projects requiring a biological assessment, either programmatic or project specific, will cease construction activities in the event any threatened or endangered species is observed near a project site. See programmatic biological assessment for more information.					
Poweshiek Skipperling	E	NDDOT Biologist Review required for work occurring outside of the right of way in Richland and Sargent Counties within undisturbed native tall grass prairie and wet swales. If ground disturbing activities occur outside the ROW in these counties, ETS or a consultant will need to conduct a habitat assessment for this species.					
Piping Plover	T	NDDOT Biologist Review required for construction activities within ½ mile of designated piping plover critical habitat or known nesting sites from April 15 through August 31. See link for piping plover designated critical habitat maps: http://www.fws.gov/mountain-prairie/species/birds/pipingplover/					

Species	Listing	Guidance	NDDOT Biologist Review Required?		Determination		Additional Documentation Included
			Yes	No	Not Present	No Effect	
Western Prairie Fringed Orchid	T	NDDOT Biologist Review required for all ground disturbing activities on non-flooded, undisturbed ground, known habitat, and native prairie. The species may also be found in roadside ditches with a high probability of the species occurring in or near the Sheyenne National Grasslands. If ground-disturbing activities will be required in Ransom or Richland counties, a survey by ETS or consultant for this species must be completed prior to ground-disturbance.					
Dakota Skipper	T	NDDOT Biologist Review required for work occurring outside of the right of way in high quality native prairie containing a high diversity of wildflowers and grasses. If ground disturbing activities occur outside the ROW in counties where the Dakota skipper may be present, ETS or a consultant will need to conduct a habitat assessment for this species.					
Rufa Red Knot	T	NDDOT Biologist Review required for construction activities within ½ mile of designated piping plover critical habitat or known nesting sites. See link for piping plover designated critical habitat maps: http://www.fws.gov/mountain-prairie/species/birds/pipingplover/					
Northern Long-Eared Bat <i>(species range includes all of North Dakota)</i>	T	NDDOT Biologist Review required for work involving the removal of trees or buildings, ground disturbance in areas with caves, mines, and rock crevices, or work on structures. Refer to NDDOT Guidance for the NLEB – Appendix D within the Section 7 ESA Guidance document.					
Rusty Patched Bumblebee	E	Species is not known to exist in North Dakota at this time. Until more information becomes available for this species in North Dakota, no project-level review is required.					
Piping Plover Critical Habitat	D	NDDOT Biologist Review required for ground disturbing activities within ½ mile of designated piping plover critical habitat or known nesting sites. See link for piping plover designated critical habitat maps: http://www.fws.gov/mountain-prairie/species/birds/pipingplover/					
Poweshiek Skipperling Critical Habitat	D	NDDOT Biologist Review required for ground disturbing activities within 0.6 mile of proposed Poweshiek Skipperling critical habitat. See link for Poweshiek Skipperling proposed critical habitat maps: http://www.fws.gov/midwest/Endangered/insects/posk/CHmaps/poskNDchUnitMaps.pdf					
Dakota Skipper Critical Habitat	D	NDDOT Biologist Review required for ground disturbing activities within 0.6 mile of proposed Dakota Skipper critical habitat. See link for Dakota Skipper proposed critical habitat maps: http://www.fws.gov/midwest/Endangered/insects/dask/CHmaps/daskNDCHmaps24Oct2013.pdf					

APPENDIX B

TEMPLATE SECTION 7 AFFECT DETERMINATION PACKAGE

The following information (based on final alternative footprint) should be provided to the ETS Biologist (through technical support for consultant projects) as one document packaged as a pdf in an email. A word version of the document should be sent if the project is internal. The subject of the email should be: Section 7 Affect Determination Package (Project Number), (PCN).

ESA Section 7 Affect Determination Package

(Project Number), PCN (Number)

(DESCRIPTION *-all caps*)

(COUNTY *-all caps*)

Sec , T--N, R--W

(Date- MM/DD/YY)

Paragraph A (to be used for Interstate, US, or State highway projects) – The North Dakota Department of Transportation, in cooperation with the Federal Highway Administration, is proposing a roadway improvement on (Highway Name, Vicinity, Description). Due to the type of work required to insert project description, the effect to insert species and/or habitat require further review according to the Affect Determination Table. The table requires a review of the project to determine either "No Effect" or if "NDDOT Biologist Review" is required.

Paragraph B (to be used for Urban and County Federal Aid Route highway projects) – (Local Government Agency replace with the appropriate City or County), in cooperation with the North Dakota Department of Transportation and Federal Highway Administration, is proposing a roadway improvement on (Roadway Name, Vicinity, Description). Due to the type of work required to insert project description, the effect to insert species and/or habitat require further review according to the Affect Determination Table. The table requires a review of the project to determine either "No Effect" or if "NDDOT Biologist Review" is required.

The project consists of Scope of Work.

Describe the project in detail (much like information contained in SOV Letters) including if right of way or additional temporary construction easements will be required. The information provided here should be tailored to the species and/or habitat based off of the information in the Affect Determination Table that would require additional documentation. Example – Whooping Cranes will need more information and discussion on above ground utilities, towers, or new guy wires. An aerial layout showing the location of the existing and additional above ground utilities should be provided as well as a schematic (detail) of what the above ground utility will consist of. The aerial location map provided should show approximately 1 mile in either direction from the project area so the surrounding habitat is visible.

The information listed below should also be included to assist in the Determination(s):

- What is involved in site prep?
- How big of an area will have the vegetation removed?
- What is the project duration?
- What equipment is used?
- Will there be blasting, pile driving, or other similar activities?
- What is the construction phasing?

- What time of the year will the project be constructed?
- Do we anticipate the use of lights and night construction?
- Will a temporary bypass be used?
- Will any above ground utility lines be moved, installed, or raised?

(We need to describe what will be done and how we are doing it. The above list is not intended to be all inclusive. The above list is just some ideas of ways to describe the project.)

This project is expected to be constructed during the 20?? construction season and is anticipated to take X months/years to complete.

Provide a rationale for why a no effect determination is appropriate for the listed species or critical habitat in question. Discuss any completed fieldwork (if necessary) and attach photos from the field visit.

Examples:

- Construction activities are out of line of sight from suitable habitat for a listed species.
- Construction would occur when the species is not present.
- Project located within 0.5 mile of critical habitat, but is located in an urban area, where there is already frequent noise/visual disturbances.
- Project located within 0.5 mile of critical habitat, but is a localized, short-duration project (signing, ITS, etc.).

Example of a no effect determination rationale:

Although the project is located within 0.5 mile of Lake Sakakawea, no in-water work or earth disturbance would be required as all work would occur on the existing roadway. In addition, the location of the project where it falls within 0.5 mile of designated critical habitat (Lake Sakakawea), is within the city limits of XXXXX, North Dakota (see attached maps). Due to the existing level of human disturbance (i.e. high traffic/noise levels), no potential direct or indirect effects to the interior least tern, piping plover, or piping plover designated critical habitat would occur as a result of the proposed project.

The following items are attached: NDDOT Affect Determination Table; an aerial location map; preliminary aerial layout of the project area; and photos/diagrams/schematics (delete this if no diagrams/schematics are included).

Based on the information provided, a “No Effect” determination is appropriate for X species/critical habitat.

Environmental and Transportation Services Representative

APPENDIX C

EXAMPLE PROJECT DESCRIPTION – PROGRAMMATIC BIOLOGICAL ASSESSMENT

Project Description Example for Programmatic Biological Assessment – Project Submittal Package

In order to ensure the project fits within the scope of the Programmatic Biological Assessment (PBA) a detailed account of the projects activities is needed.

A general outline of what should be included as a project description:

- *A paragraph or two that explains a general description of the project*
- *A description of the type of work required for all bridge and box culvert structures*
- *A breakdown of work activities for the project*
 - *Site Prep*
 - Tree removals need to be discussed (estimate of amount to be removed and species – if known).
 - *Roadway Construction*
 - How will traffic be maintained? Will a temporary bypass be needed?
 - *Site Restoration*
 - *Wetland Mitigation*
 - *Miscellaneous*
 - Overhead utility impacts (raising/lowering/shifting) need to be discussed.
 - Tree removals (approximation and species if known)

Below is an example of a project description to be included in the PBA project submittal package. This should be used as a template, and suited to the specific project (i.e. signing projects or standalone bridge project descriptions would be less inclusive than a major rehabilitation or new roadway construction project description such as the example given below).

The NDDOT, in cooperation with Federal Highway Administration (FHWA), is proposing to widen approximately 19 miles of the ND Highway 49 corridor between Beulah and the Morton/Mercer County line (proposed action). ***Please refer to attached maps.*** The proposed action is considered a major rehabilitation and consists of roadway widening with hot bituminous pavement overlay, turn lane installations, vertical curve reconstruction, structure improvements, and safety upgrades. Improvements will primarily consist of widening the existing roadbed to a total width of 36 feet and re-grading the ditch section to accommodate 6 ft. shoulders. The existing roadway will be blended and re-surfaced with aggregate base and hot bituminous pavement. The proposed action is planned to begin in spring of 2015 and be completed by fall of 2015.

Three structures within the project corridor have been recommended for replacement. Structure 49-101.247 over the Knife River was selected for replacement. The new structure that will replace the existing bridge will be a 288 ft. I-beam style bridge with 40 ft. of clear roadway giving each lane of traffic 12 ft. of driving lane and 8 ft. of shoulder. In order to maintain the hydraulic capacity on the Knife River under this structure, the Knife River channel will need to be widened. The new bridge will have two piers, and will be placed within the channel of the Knife River. Depending on flow conditions during the time of pier installation, sheet piles may be required to be driven in the channel in order to install the piers within the river channel.

Structure 49-096.039 will be replaced. This structure is a three span concrete slab bridge, and is located over Brush Creek. This structure will be replaced with a 106 foot 1-span prestressed concrete I-beam bridge. Structure 49-090.081 will also be replaced. This structure is a three span concrete tee beam

bridge, and is located over Coyote Creek. This structure will be replaced with a triple 8x8 reinforced concrete box culvert.

For all bridge replacements, temporary bypasses would be constructed to allow traffic to continue on ND Highway 49. For the installation of temporary bypasses, pipes would be placed in the channels and would be partially submerged below the bottom of the channel to allow for low water flows and aquatic species movement. Temporary rip rap and fill material would be placed on top of the pipe structures to allow for movement of traffic across the temporary bypass structures. Erosion control devices would be placed accordingly throughout this process to minimize erosion and sedimentation into/within waterbodies.

The contractor would be responsible for designing, implementing, and maintaining a storm-water pollution prevention plan (SWPPP) for this project, which would minimize/reduce potential water quality impacts. Devices such as floating silt curtains, straw rolls, sheet piling (to divert water) would be used to minimize the potential for increased sedimentation or turbidity within the Knife River. Temporary dewatering and a temporary stream diversion may be needed depending on the conditions at the time of construction. A Special Provision for Temporary Stream Diversions will be issued for this project. Typically, when a dike/berm will be constructed, one or more of the following methods will be utilized to prevent soil/water interaction: sandbags, sheet piles, acceptable rock size wrapped Geosynthetic Type R1, portable concrete barrier wrapped with Geosynthetic Type R1 or other, water filled bladder, impermeable containers, or prefabricated dams.

For bridge removal activities, the deck would be cut and removed piece by piece in large portions to expose rebar and piers. Equipment such as a backhoe mounted jackhammer would be used to aid in the removal of piers and abutments. Removed materials would be properly disposed of by the contractor. Any bridge materials that inadvertently fall into Brush / Coyote creek or the Knife River would be removed and would be properly disposed by the contractor. After existing structures have been removed, and new structures have been completed and are functional; temporary bypasses would be removed.

Small diameter drainage structures (centerline culverts) will be improved to meet current hydraulic requirements. Approximately 8.6 acres of permanent right-of-way (ROW) would be acquired for this project, as well as approximately 3.25 acres of temporary construction easements. A majority of the roadway construction components will be constructed within the existing ROW).

Expected construction sequencing of the proposed action is as follows:

Site Preparation

- This project will be constructed in one year, with a potential to carry on to the next construction season. Construction will begin in early spring with the first work items being installation of traffic controls and erosion control devices. Erosion control devices will be installed, maintained, upgraded, and removed as needed before, throughout, and after roadway construction.
- The site will be cleared, grubbed, and have topsoil removed and stockpiled to begin excavation and embankment construction. Due to the length of the project (19 miles) site clearing may be done in stages as the work progresses.
- Approximately 39 trees [mixture of green ash (*Fraxinus pennsylvanica*) and box elder (*Acer negundo*)] will need to be removed adjacent to the Knife River bridge.

Roadway Construction

- Excavation and embankment operations will begin in early spring and continue to October.
- Culverts will be extended or replaced as required by construction of this project to maintain the existing drainage patterns. There are 51 culverts along the project and it is anticipated that all of them would need to be extended or replaced. Six cattle passes also exist within the project area, and would be extended, but not replaced. Potential permanent erosion control would be placed at the outlets of the drainage structures.
- Any borrow sites needed for the project would be cleared and approved through the NDDOT material source clearance process.
- Hot Bituminous Overlay will be installed upon completion of the sliver grading. The new roadway section will consist of a 36 foot paved top and 4:1 inslopes.
- Rumble strips will be placed after paving.
- Pile driving is expected for roadway construction in order to place new bridge piers.

Site Restoration

- The entire disturbed area will be seeded with a NDDOT approved grass seed mixture once all work is complete. If all work cannot be completed by fall, a temporary seed mix will be applied in the fall with a permanent seeding in the following spring.

Wetland Mitigation

- Approximately 0.58 acre of natural/ jurisdictional and 0.05 acre of artificial/ jurisdictional wetlands will be impacted permanently, and 1.13 acres will be temporarily impacted. Unavoidable permanent impacts to natural/jurisdictional wetlands will be mitigated on-site (2:1 ratio). Unavoidable impacts to artificial jurisdictional wetlands will be mitigated at the Vollrath mitigation bank (1:1 ratio) in Towner County.

Miscellaneous

- Two-lane traffic will be maintained throughout a majority of the project. During the paving activities of the project, one-way traffic will be maintained and a pilot car and flagging will be required. Temporary bypasses will be required at all three of the bridge replacement locations.
- Equipment for this type of work would be consistent with heavy highway construction and would include (but not limited to): bulldozers, scrapers, motor graders, backhoes, trucks, asphalt paver, rollers, etc.
- Impacts to existing utilities as a result of the proposed action would be coordinated with utility companies during the design phase. No additional (new) overhead utility lines would be installed as a result of the proposed action; however, 3 existing overhead utility poles associated lines would be adjusted (raised) and one overhead utility pole would need to be moved to accommodate the widened highway.

APPENDIX D

NLEB GUIDANCE FOR NDDOT PROJECTS

North Dakota Department of Transportation (NDDOT) Section 7 Guidance for the Northern Long Eared Bat (NLEB)

NDDOT projects in or near forested/wooded areas that require tree removals, work on structures (alteration, maintenance, or removal of bridges, buildings, cattle passes, culverts, sheds), or cave/mine impacts, have the potential to affect the northern long-eared bat. In order to fulfill Section 7 Endangered Species Act requirements for this species, the three following methods may be used. The appropriate method is dependent upon project timelines and whether or not conservation measures can be implemented for a project (e.g. seasonal tree removal, bridge inspections, etc.).

- **NDDOT/FHWA Programmatic Biological Assessment**
 - Quickest method to achieve compliance under Section 7 of the ESA for this species, no FHWA/USFWS approval or review is required.
 - Applicable conservation measures (i.e. seasonal structure/tree removals, bridge inspections, etc.) must be used, unless a no effect determination is appropriate.
 - Does not cover adverse effects (only may affect, not likely to adversely affect determinations).
 - Preferred method if more than one species requires NDDOT biologist review and the NDDOT/FHWA Programmatic Biological Assessment is used, and either a “no effect” determination or a “may affect, not likely to adversely affect determination” can be reached for the NLEB. This method is also preferred if the NLEB is the only species that requires NDDOT biologist review, a “may affect, not likely to adversely affect” determination is appropriate, and applicable conservation measures can be used.

- **FHWA/USFWS Range Wide Programmatic Consultation for the NLEB**
 - Takes two weeks to achieve compliance under Section 7 of the ESA for this species, unless used strictly for a no effect determination.
 - Covers “no effect”, “may affect, not likely to adversely affect”, and “may affect likely to adversely affect determinations”.
 - Applicable conservation measures (avoidance and minimization measures – AMMs – such as seasonal tree removals and structure work) must be used, unless a no effect determination is appropriate.
 - Preferred method if the NLEB is the only species that requires NDDOT biologist review, and a no effect determination is appropriate for the NLEB.

- **USFWS Final 4(d) Rule Streamlined Consultation Process**
 - Longest method to achieve compliance under Section 7 of the ESA for this species (i.e. takes 30 days once FHWA sends the consultation form to USFWS).
 - Covers “may affect, not likely to adversely affect”, and “may affect, likely to adversely affect” determinations.
 - Although recommended, conservation measures do not need to be used.
 - Preferred method if the project “may affect” the NLEB and conservation measures such as seasonal tree removals or other avoidance and minimization measures cannot be implemented.

Guidance on how to use each of the three methods for NDDOT projects are given below. Consultants will need to work with the technical support representative and the ETS biologist to determine if conservation measures such as seasonal tree removals can be implemented for a project. This will be dependent upon the bid date and whether or not a contractor will have a project before the active season for bats begins. In some instances, NDDOT District staff may be able to complete tree removal activities if the project has not been bid and tree removals need to be completed before April 1 or after September 30.

Any questions on how to fulfill section 7 ESA requirements for the NLEB should be directed to NDDOT – ETS Division (Greg Schonert – gschonert@nd.gov – 701-328-2592).

NDDOT/FHWA Programmatic Biological Assessment (PBA)

In order to fit the scope of the NDDOT/FHWA PBA, the project must have no effect, or insignificant or discountable effects (may affect, not likely to adversely affect) to the NLEB.

In order for a “no effect” determination to be reached under the NDDOT/FHWA PBA, one or more of the following conditions must be met.

- No suitable habitat is located within 1,000 feet the project (i.e. naturally occurring forested/wooded areas or other treed habitat that directly links to forested/wooded areas). Urban areas are extremely unlikely to contain suitable habitat for this species.
- No tree removals would be required. Tree removals only refers to suitable habitat. Single trees, planted shelter- belts, urban plantings, are typically not suitable habitat unless there are naturally forested/wooded areas in close proximity.
- No structure work would be required (i.e. bridges/box culverts or buildings, barns, sheds, etc.) *or* structure work would remain on the surface of the bridge with no potential for drilling down to the underside of the deck and noise/vibrations would be similar to daily traffic *or* below deck work that is conducted away from potential roosting area (some abutment, beam end, and scour repair).
- Structure work would be required and suitable habitat is located near the project; however, a survey has been completed for the presence of bats and no indications of bat use (acoustic monitoring, guano accumulations, staining, etc.) were identified.

For Consultant Projects: No Effect Determinations

Note – If the NLEB is the only species that requires further review according to the NDDOT Affect Determination Table, and a no effect determination is appropriate, use the FHWA/USFWS Range Wide Programmatic Consultation for the NLEB. If the NDDOT/FHWA PBA is used for other species that may be affected, but a “no effect” determination is appropriate for the NLEB, under the NLEB Affect Determination section within the project submittal package for the NDDOT/FHWA PBA, mark “no effect”. The project description should describe if tree removals or structure work is required.

If the project has “no effect” on the NLEB based on lack of suitable habitat, an aerial imagery map should be provided in order to document the absence of forested/wooded habitat near the project. If the project has no effect on the NLEB based on the negative results of a presence/absence survey (structure inspections/acoustic monitoring), the bridge/structure assessment form should be attached with photos from the field visit. The bridge/structure assessment form can be found in Appendix I of the FHWA/NDDOT PBA. If the NDDOT requests acoustic monitoring, USFWS survey guidelines should be used.

For Internal Projects: No Effect Determinations

The NDDOT biologist will determine the appropriate method to comply with Section 7 for this species and if applicable, will select the appropriate conservation measures.

In order for a “may affect, not likely to adversely affect” determination to be reached under the NDDOT/FHWA PBA, one or more of the following conditions must be met if the project occurs adjacent to suitable habitat for the species (forested/wooded areas) and the project requires tree removals and/or structure work (bridges, box culverts, outbuildings, sheds, etc.).

If tree removals for a proposed project are required and the trees are considered suitable habitat, the following three conservation measures must be used.

- Conduct tree removal activities outside of the northern long-eared bat pup season (June 1 to July 31) and/or the active season (April 15 – September 30).
- Ensure tree removal is limited to that specified in project plans. Install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits.
- Do not cut down documented NLEB roosts or trees within 0.25 miles of roosts, or documented foraging habitat during any time of year. *Note- North Dakota currently does not have documented NLEB roosts or foraging habitat at this point in time. Should these types of features be identified in the future, this measure may need to be implemented to avoid adverse effects.*

If work is required on bridges or box culverts and there is suitable NLEB habitat near the structures, one or more of the following conservation measures must be used.

- Perform any bridge repair, retrofit, maintenance, and/or rehabilitation work during the winter hibernation period (October 1 – March 31).
- If construction activity is planned during the active season (April 1 – September 30), perform a bridge assessment for presence of bats. See Appendix I of the NDDOT/FHWA PBA for bridge/structure assessment guidance or the USFWS website for further information. If bridge assessment suggests that bats are not present, no further action is necessary.
- If bridge assessment for bats suggests presence of bats, ensure activities will not disturb bats. The following types of bridge work can be conducted with the presence of bats:

- Above deck work that does not drill down to the underside of the deck or include percussives (vibration) or noise levels above general traffic (e.g. road paving, wing-wall

work, work above that does not drill down to underside of deck).

- Below deck work that is conducted away from roosting bats and does not involve percussives or noise levels above general traffic (e.g. some abutment, beam end, scour, or pier repair).

If structure work is required (rest areas, offices, sheds, outbuildings, and barns etc.) and there is suitable NLEB habitat near the structures, one or more of the following conservation measures must be used.

Note- This category includes manmade structures that may provide bat roosting habitat that are not bridges or box culverts.

- Perform an inspection of the structure for signs of bat use prior to demolition/removal or repair work (see Appendix I of the NDDOT/FHWA PBA). If no signs of bat use are observed, structure demolition/removal or modifications may occur. If signs of bat use are observed, see the following conservation measures:
- Perform maintenance or repair work during the inactive season (October 1 – March 31).
- Avoid removing structures unless there are concerns about human health/safety/property and coordinate with a nuisance wildlife control officer and the local USFWS field office.

For Consultant Projects: May Affect Not Likely to Adversely Affect Determinations

If more than one species requires NDDOT biologist review according to the NDDOT Affect Determination Table, and the NDDOT/FHWA PBA is used, the NLEB may be covered under the PBA if applicable conservation measures can be selected, and adverse effects are not anticipated. If the project "may affect, but is not likely to adversely affect" the NLEB, describe in the project description why the species may be affected (i.e. tree removals, structure work, etc.). Then select the appropriate conservation measures for the NLEB within the project submittal package for the NDDOT/FHWA PBA. In the NLEB Affect Determination section, the box that states "may affect, but is not likely to adversely affect" should be checked for this species. If conservation measures cannot be implemented, the NLEB 4(d) Rule Streamlined Consultation Process / Form must be used.

If there are questions on which conservation measures need to be selected, please contact the NDDOT biologist (328-2592 or gschonert@nd.gov).

For Internal Projects: May Affect Not Likely to Adversely Affect Determinations

The NDDOT biologist will determine the appropriate method to comply with Section 7 for this species and if applicable, will select the appropriate conservation measures.

FHWA/USFWS Range Wide Programmatic Consultation for the NLEB

Federal Highway Administration (FHWA), Federal Railway Administration (FRA) and the USFWS have jointly developed a programmatic Endangered Species Act (ESA) Section 7 consultation for common types of transportation actions. The following information will aid in the documentation process for “No Effect”, “May Affect Not Likely to Adversely Affect” and “May Affect, Likely to Adversely Affect” determinations.

More information on this programmatic consultation between FHWA and USFWS can be found at the following link.

<https://www.fws.gov/midwest/endangered/section7/fhwa/index.html>

*Note-If the NLEB is the only species that requires NDDOT biologist review for a project and a no effect determination is appropriate for the species; the standard routine of completing a Section 7 Affect determination package with supporting documentation for a No Effect determination specifically for the NLEB no longer applies. Determine the work activities that trigger NDDOT biologist review for the NLEB and refer to the examples below on how to proceed with implementing the FHWA/USFWS PBA. Step by step examples for highly repetitive work activities are given below.

*Note- If other species also require FHWA review, a Section 7 Affect Determination Package will still need to be prepared, if a no effect determination is appropriate for that particular species. If this is the case, the “No Effect” determination (project submittal form) for the NLEB should be included as part of the Section 7 Affect Determination Package as an attachment.

Documentation Process for using the FHWA/USFWS programmatic for NDDOT Projects to reach a No Effect Determination

The following section provides a description of how to implement the PBA for “No Effect” determinations.

USFWS Suitable Habitat Definition for the NLEB:

Suitable summer habitat for NLEB consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥ 3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit characteristics of suitable roost trees and are within 1,000 feet of other forested/wooded habitat. NLEB has also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat.

EXAMPLE #1- Tree removals – No Effect

A project requires tree removals, but will not remove suitable habitat for the NLEB (i.e. removals only include isolated trees, single tree rows, shelterbelts, urban plantings, etc. – see USFWS definition for suitable habitat for the NLEB above).

- 1) 1) A T&E table should be filled out accordingly to the county(ies) the project is in. Since NDDOT biologist review would only be required for the bat, “Yes” should be checked in the NLEB row for “NDDOT biologist Review Required”; “No Effect” should be checked in the Determination column; and “USFWS/FHWA Programmatic BA” should be added to the “Additional Documentation Included Column”. May need to shrink text so format of table does not change.

The attached documentation will be the project submittal form, found at the following link; as well as supporting documentation such as maps or photos. The project submittal form can also be found on the NDDOT website (references and forms section of the Design Manual).

<http://www.fws.gov/midwest/endangered/section7/fhwa/pdf/ProjectSubmittalForm062315.pdf>

- 2) After T&E table is complete, fill out project submittal form. This form is fairly self-explanatory. For “No Effect” determinations, only numbers 1-8 should be filled out. For requesting agency (#3), NDDOT should be placed in box. The following information can be placed in the boxes associated with #3 (requesting agency – NDDOT – Greg Schonert – Biologist – 701-328-2592 – gschonert@nd.gov). For consultation code (#4) state: “N/A - No Effect Determination”.

For #6, include a short description of the project, why the NLEB requires FHWA review, and why a “No Effect” determination is appropriate (i.e. lack of suitable habitat due to projects location in urbanized area, etc.). In this case for #8 on the project submittal form, the second box should be checked (No effect- project inside species range, but no suitable summer habitat). After #8 is reached the form is complete.

- 3) Since it was determined no suitable habitat was present, in order to document this; include an aerial imagery map(s) that shows the project area and 1-2 mile vicinity to show lack of suitable habitat, and where tree removals would occur. May need several maps to document this.
- 4) The final documentation should include: a properly filled out T&E table, project submittal form, and aerial map(s) (in that specific order). A signature line should be left on the T&E table for ETS to sign. This final documentation should be included as an Appendix in the environmental document. FHWA will not need to concur/review the “No Effect” determination.

EXAMPLE #2- Bridge Maintenance, Alteration, or Demolition of Bridge/Structures – No Effect

A project requires maintenance, alteration, or demolition/removal of a bridge/structure, but no suitable summer habitat is located within 1.5 miles of the bridge or structure (1.5 miles is the estimated home range for NLEBs), or the bridge/structure is located in an urban area with no natural wooded habitat present in the vicinity. Structures include: cattle passes, large diameter culverts (5 feet

or over), buildings and sheds. Small diameter centerline culverts are not considered potential habitat for the NLEB.

Note- Although there may be forested/wooded habitat within 1.5 miles of a structure, there must be some habitat connectivity (i.e. tree rows, wooded draws, riparian areas, etc.) that leads up to near the structure. Research has shown that the NLEB does not cross large open areas void of wooded habitat. If unsure potential habitat is located near a project, contact NDDOT ETS Division for assistance.

- 1) A T&E table should be filled out accordingly to the county(ies) the project is in. Since FHWA review would only be required for the bat, “Yes” should be checked in the NLEB row for “FHWA Review Required”; check “No Effect” within the Determination column; and “USFWS/FHWA Programmatic BA” should be added to the “Additional Documentation Included Column”. May need to shrink text so format of table does not change.
- 2) After T&E table is complete, fill out project submittal form. For “No Effect” determinations, only numbers 1-8 should be filled out. For requesting agency (#3), NDDOT should be placed in box. The following information can be placed in the boxes associated with #3 (requesting agency – NDDOT – Greg Schonert – Biologist – 701-328-2592 – gschonert@nd.gov). For consultation code (#4) state: “N/A - No Effect Determination. No USFWS coordination/consultation required”.

For #6, include a short description of the project, why the bat requires FHWA review, and why a “No Effect” determination (i.e. lack of suitable habitat due to projects location in urbanized or non-forested area.). In this case for #8 on the project submittal form, the second box should be checked (No effect- project inside species range, but no suitable summer habitat). After #8 is reached the form is complete.

- 3) Since it was determined no suitable habitat was present, in order to document this; include an aerial imagery map(s) that shows the project area and vicinity to show lack of suitable habitat within 1.5 miles of project. May need several maps to document this.
- 4) The final documentation should include: a properly filled out T&E table, project submittal form, and aerial map(s) (in that specific order). A signature line should be left on the T&E table for ETS to sign. This final documentation should be included as an Appendix in the environmental document. FHWA will not need to concur/review the “No Effect” determination.

Documentation Process for NDDOT Projects that May Affect the NLEB

The FHWA/USFWS Range Wide Programmatic Consultation can also be used for “may affect, not likely to adversely affect” determinations as well as “may affect, likely to adversely affect” determinations. Applicable conservation measures must be implemented. This method of documentation will be used on an as-needed basis. Guidance for how to complete the FHWA/USFWS project submittal form for these effect determinations can be found at the following link, refer to the User’s Guide and Avoidance and Minimization Measures documents.

<https://www.fws.gov/midwest/endangered/section7/fhwa/index.html>

USFWS Programmatic 4(d) Rule Streamlined Consultation

A final 4 (d) rule with associated Programmatic Biological Opinion (PBO) has been released by the USFWS for the threatened northern long-eared bat (*Myotis septentrionalis*). The final 4 (d) rule has determined that incidental take of northern long-eared bats (NLEB) is not prohibited in areas outside of the White-Nose Syndrome zone, which includes the whole state of North Dakota. Therefore, projects requiring tree removals, work on structures (bridges, buildings, cattle passes, culverts), and impacts to caves/mines, although recommended, no longer need to commit to restrictions such as structure inspections, seasonal tree removals, or other restrictions such as seasonal building demolitions. A framework has been released by the U.S. Fish and Wildlife Service (USFWS) in order for federal agencies to fulfill their project-specific section 7 responsibilities. The framework is meant for actions that “May Affect” the NLEB.

Project activities that “May Affect” the NLEB include tree removals, structure (bridge, building, cattle pass, culvert) alteration, demolition, maintenance, or removal, and impacts to caves or mines. Note – small diameter centerline culverts would not be considered suitable habitat for the NLEB. All bridges and most large culverts (5 feet or larger in diameter) have the potential to act as a day or night roost for the NLEB if located in or near a forested/wooded area.

The letter template (see link below, refer to 4d rule streamlined consultation form) should be used in order to fulfill section 7 requirements that “May Affect” the NLEB for NDDOT projects in or near forested/wooded habitat. Information that should be included on the form is listed out below the link.

<https://www.fws.gov/midwest/endangered/mammals/nleb/s7.html>

- **Agency and applicant:** FHWA ND Division – NorthDakota.Fhwa@dot.gov – 701-250-4204
- **Project Name:** Project number and PCN
- **Project Location:** Short description of roadway and county
- **Basic Project Description:** Describe the project briefly and any tree removals or structure work or other activities that “may affect” the NLEB
 - Attach a map(s) and any additional documentation (i.e. expanded work description)
- **General Project Information:**
 - North Dakota contains no known hibernaculum or maternity roost trees at this point in time; therefore, “no” should be selected for these parameters.
 - Fill in applicable information regarding forest conversion (i.e. tree removals), if extent of impacts are known as well as timing. If not known, state “unknown”.
 - Prescribed fire and wind energy do not apply, so “no” should be selected for these parameters.

When the letter has been completed, it should be sent to NDDOT ETS (Greg Schonert – gschonert@nd.gov) for review. Once the document has been reviewed it will be sent to FHWA for review and signature. FHWA will send the letter to the USFWS Ecological Services office for a 30-day review period. If the USFWS does not respond within the 30-day window, FHWA/NDDOT may presume its affect determination is informed by the best available information and consider its project responsibilities under section 7 with respect to the NLEB fulfilled through the programmatic biological

opinion. USFWS concurrence with FHWA's determination is not required; however, the USFWS may request additional information or may advise FHWA that separate consultation may be required. The signed letter from FHWA should be included as documentation that compliance has been reached for this species; however, the thirty day window must be over in order for compliance to be complete.

APPENDIX E

LEVEL III/IV ECOREGION DESCRIPTIONS

LEVEL III/ECOREGION DESCRIPTIONS

Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. They are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components. These general purpose regions are critical for structuring and implementing ecosystem management strategies across federal agencies, state agencies, and nongovernment organizations that are responsible for different types of resources within the same geographical areas. In order to determine the Level III/IV Ecoregion the project falls within (Page 2 of the project submittal package), refer to the following website.

https://geodata.epa.gov/ArcGIS/rest/services/ORD/USEPA_Ecoregions_Level_III_and_IV/MapServer

The Level III/IV Ecoregion map for North Dakota can be viewed on the ArcGIS Online Map Viewer, or files can be downloaded for use in Google Earth, ArcMap, or ArcGIS Explorer. If the online map viewer is used, hover the mouse over the USEPA Ecoregions Level II and IV content tab and click on the blue dotted line that appears below the tab. Adjust the transparency so roadways can be seen with the Ecoregions overlaid. Then determine which ecoregions the project falls within and add to the project submittal package. Descriptions of the Level III/IV Ecoregion can be found within Appendix E. The number as well as name of the Level III/IV Ecoregion(s) should be included [i.e. Northern Glaciated Plains – 42a (Missouri Coteau), 42b (Collapsed Glacial Outwash, and 42c (Missouri Coteau Slope)].

Level III Ecoregion Summary – Northern Glaciated Plains (42)

<https://landcovertrends.usgs.gov/gp/eco42Report.html>

The Northwestern Glaciated Plains ecoregion is located in northeastern Montana, northwest and central North Dakota, and central South Dakota and covers approximately 161,400 km² (62,317 mi²) (fig. 1). Essentially, the ecoregion is located along the Missouri River in these three states. It is considered a transitional ecoregion because it is located between the more level and humid Northern Glaciated Plains and the more irregular and drier Northwestern Great Plains (Omernik, 1987). The climate of the Northwestern Glaciated Plains is considered semiarid, as it is in the rainshadow of the Rocky Mountains to the west. The Gulf of Mexico is the principal source of moisture with most precipitation occurring during May and June.

Continental glaciation—where outwash material has been deposited by glacial meltwater and precipitation runoff—has defined the western and southwestern border of the ecoregion. Brown clay loam soils and gravelly areas are common and were derived from glacial drift. Groundwater is shallow and plentiful and there exists a moderately high concentration of semi-permanent and seasonal wetlands, locally referred to as “prairie potholes”. These wetlands, along with larger, shallow lakes, are rich with wildlife. Rivers that flow through the Northwestern Glaciated Plains include the Marias, Milk, and Missouri. The Missouri River flows in and along the southern and western border of the ecoregion.

The native vegetation is a mixed grass prairie consisting primarily of grama, needlegrass, and wheatgrass. Major land uses within the ecoregion are mixed dryland farming and livestock grazing. In the western portion of the ecoregion rangeland is common. Agriculture is found on the undissected gravel benches and in the alluvial soils of the Montana river valleys. Further east in North Dakota, extensive cash grain farms of wheat, barley, oats, and hay are found. Further south in the Dakotas, row

crops such as sunflowers, soybeans, corn, and sorghum are found. Oil production also occurs within the ecoregion, mostly in the western half.

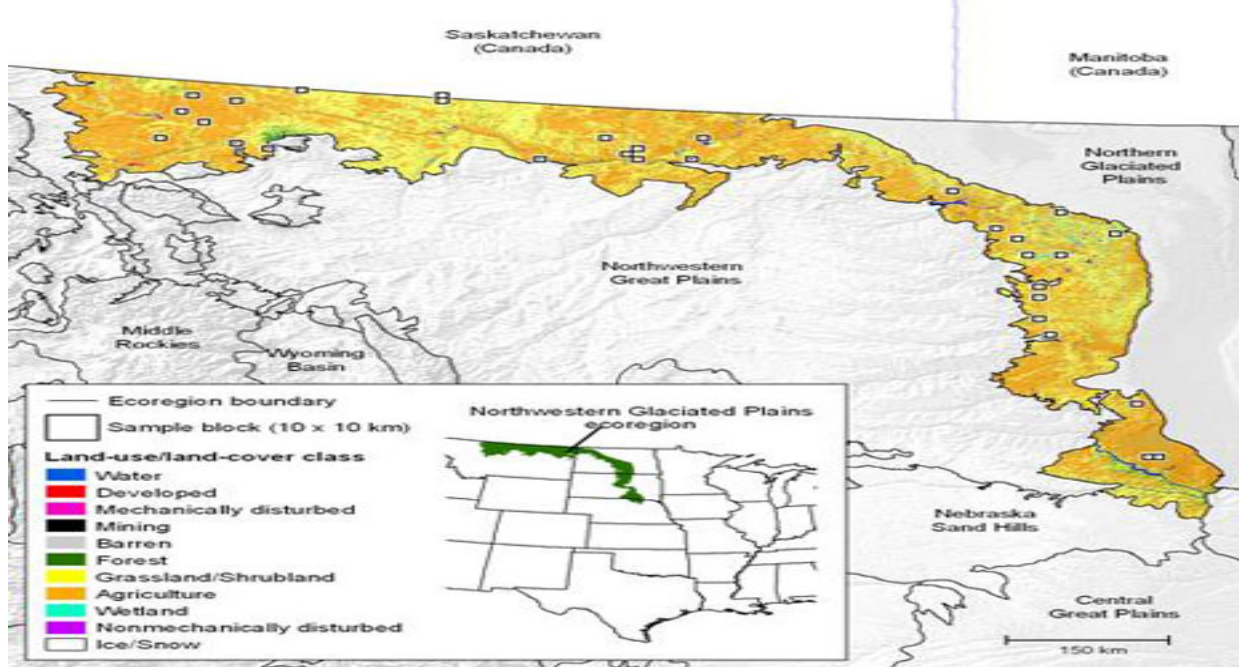


Figure 1. Northern Glaciated Plains

Level IV Ecoregions within the Northern Glaciated Plains (42)

- 42a - Like closely-spaced ocean swells, the rolling hummocks of the **Missouri Coteau** enclose countless wetland depressions or potholes. During its slow retreat, the Wisconsin glacier stalled on the Missouri escarpment for thousands of years, melting slowly beneath a mantle of sediment to create the characteristic pothole topography of the Coteau. The wetlands of the Missouri Coteau and the neighboring prairie pothole regions are the major waterfowl production areas in North America. Land use on the coteau is a mixture of tilled agriculture in flatter areas and grazing land on steeper slopes.
- 42b - Areas of **Collapsed Glacial Outwash** formed from gravel and sand deposited by glacial meltwater and precipitation runoff over stagnant ice. Many large, shallow lakes are found in these areas; these lakes and wetlands tend to be slightly to very alkaline depending upon the flowpath of groundwater moving through the permeable outwash deposits. They attract birds preferring large areas of open water, such as white pelicans, black terns, and Forster's terns, as well as those living in brackish water, such as avocets and tundra swans.
- 42c - The **Missouri Coteau Slope** ecoregion declines in elevation from the Missouri Coteau (42a) to the Missouri River. Unlike the Missouri Coteau (42a) where there is a paucity of streams, the Missouri Coteau Slope has a simple drainage pattern and fewer wetland depressions. Due to the level to gently rolling topography, there is more cropland than on the Missouri Coteau (42a). Cattle graze on the steeper land that occurs along drainages.

- 42d - The **Northern Missouri Coteau** lies in a transition zone to a more boreal climate to the north and a more arid climate to the west. Willow and aspen, southern outliers of aspen parkland to the north, may occur at wetland margins. Rough fescue, also a northern species, appears in grassland associations. Wetlands tend to dry out earlier in the summer than on the Missouri Coteau (42a) to the south and east. Mixed dryland agriculture is the major land use.
- 42i - The boundary of the **Glaciated Dark Brown Prairie** region marks a transition to drier conditions. Ecoregion 42i has a well-defined drainage system and fewer wetlands compared to the more recently glaciated Missouri Coteau Slope (42c) to the east. Land use is a mosaic of cropland and rangeland.

Level III Ecoregion Summary – Northwestern Great Plains (43)

<https://landcover.trends.usgs.gov/gp/eco43Report.html>

The Northwestern Great Plains is a large ecoregion covering approximately 346,883 km² (133,932 mi²) of western South Dakota, southwestern North Dakota, southeastern Montana, and northeastern Wyoming (fig. 2). The northeast edge of the ecoregion, throughout Montana, North Dakota and South Dakota, is roughly bordered by the Missouri River and the system of dams and reservoirs along it. The Northwestern Great Plains ecoregion has a considerable amount of tribal, federal, and state lands in the form of Indian reservations, national grasslands, Bureau of Land Management lands, and national parks.

The landscape of the Northwestern Great Plains ecoregion is a semiarid rolling plain of shale and sandstone derived soils punctuated by occasional buttes and badlands (fig. 2). The badlands of North and South Dakota are both unique features of the ecoregion that have been incorporated into national parks. The elevation of the ecoregion ranges from 458 - 1,200 meters (1,500 - 3,900 feet) (McNab and Avers, 1994). This mostly unglaciated plain has shallow soils with clayey textures not conducive to growing crops. The climate conditions include erratic precipitation of 250 to 510 millimeters (10 to 20 inches) per year, with the majority falling during the growing season. Native semiarid grasslands cover the majority of the ecoregion and include western wheatgrass, needlegrass, blue grama, and buffalo grass (Woods and others, 2002).

Land use in the Northwestern Great Plains is mostly livestock grazing of cattle and sheep. Crop agriculture in the ecoregion is limited by the soil quality, precipitation and limited access to irrigation. The main agriculture areas are located in the Missouri Plateau portions of North Dakota, South Dakota and Montana and consist mostly of dryland farming (Bryce and others, 1998). Spring wheat is the predominant crop, with smaller amounts barley, oats, sunflowers, alfalfa, and other hay. However, drought-resistant, genetically modified crops, like soybeans, are expanding from the eastern portion of the ecoregion (Higgins and others, 2002).

The 2000 land cover of the ecoregion was estimated to be approximately 77 percent grassland/shrubland, 15 percent agriculture, and two percent each of forest, barren, and water (fig. 3). The majority of the forest land cover is limited to areas of ponderosa pine forest in southeastern Montana, but there are also small areas in the major river valleys of the region. Mining is also a minor land cover in the ecoregion with oil, gas, and coal deposits scattered throughout the Powder River Basin of Wyoming.

Level IV Ecoregions within the Northwestern Great Plains 43)

- 43a - On the **Missouri Plateau**, west of the Missouri River, the landscape opens up to become the “wide open spaces” of the American West. The topography of this ecoregion was largely unaffected by glaciation and retains its original soils and complex stream drainage pattern. A mosaic of spring wheat, alfalfa, and grazing land covers the shortgrass prairie where herds of bison, antelope and elk once grazed.
- 43b - The gothic erosional landscape of the **Little Missouri Badlands** formed when the Little Missouri River was diverted along a steeper course by Pleistocene glaciers. The soft silts and clays of the Sentinel Butte and Bullion Creek Formations continually melt off the sparsely vegetated conical hillslopes. The collapse of caverns created by burning coal seams also hastens erosion. Rocky Mountain juniper grows on the hillslopes; cottonwood and green ash appear in the riparian areas. Ephemeral, flashy stream flow creates steep, downcut channels in the soft sediments along the tributaries to the Little Missouri River. Grazing and recreation are the dominant land uses. This region also includes the Killdeer Mountains.
- 43c - The **River Breaks** form broken terraces and uplands that descend to the Missouri River and its major tributaries. They have formed particularly in soft, easily erodible strata, such as Pierre shale. The dissected topography, wooded draws, and uncultivated areas provide a haven for wildlife. Riparian gallery forests of cottonwood and green ash persist along major tributaries such as the Moreau and Cheyenne rivers, but they have largely been eliminated along the Missouri River by impoundments.

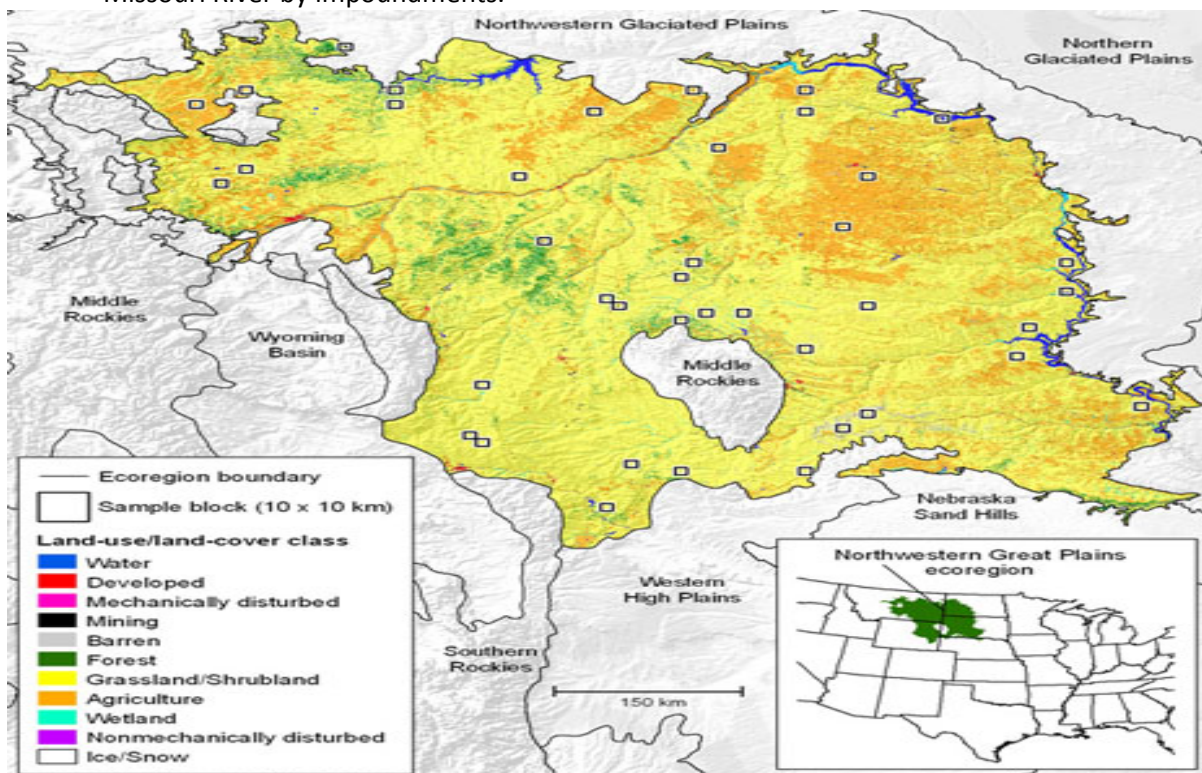


Figure 2. Northwestern Great Plains

Level III Ecoregion Summary – Northern Glaciated Plains (46)

<https://landcover.trends.usgs.gov/gp/eco46Report.html>

The Northern Glaciated Plains is primarily a north to south trending ecoregion across eastern North and South Dakota. It widens to the west in north-central North Dakota and to the east into west-central Minnesota and covers approximately 141,340 km² (54,572 mi²) (fig. 1). The climate is considered continental (hot or warm summers and cold winters) and precipitation ranges from approximately 510 to 610 millimeters (20 to 24 inches) in an average year for the main part of the ecoregion but decreases to the northwest and increases in the southeast (Kottek and others, 2006; PRISM Group, 2006). This sub-humid climate makes the Ecoregion "transitional grassland" containing both tall grass and short grass prairie communities (U.S. Environmental Protection Agency, 2002). Although historically the ecoregion was dominated by grasslands, it has been primarily converted to farmland. The recent glacial nature of most of the Northern Glaciated Plains' land forms (less than 25,000 years before present) (Johnson and Higgins, 1997) contributes heavily to the land covers and uses found in the ecoregion. Drift plains, large glacial lake basins, and shallow river valleys, with level to undulating surfaces and deep soils, provide the basis for crop agriculture. Where the glaciers left heavy deposits of rock, gravel, and sand, grasslands remained generally more intact and their use became grazing land for livestock. This geologic youth has left an immature drainage system and the ecoregion is dotted with substantial numbers of wetland depressions, ranging in size and permanence. There are also sub-regional concentrations of glacial formed permanent lakes. Agriculture, grasslands, wetlands, and water form the general mosaic of land cover for the ecoregion.

Agriculture is the canvass on which the other land covers are embedded. Grain and cattle production is the dominant land use (fig. 2). A majority of the agricultural land cover is cropped. Farming tends only to be limited by certain soil, topographic, and wetland conditions. There are latitudinal and longitudinal differences in the combinations of crops grown. Corn and soybeans are the main crops in the southern part of the ecoregion transitioning to soybeans and wheat in the central area and then mostly wheat, other small grains, and canola (rapeseed) in the northern parts (fig. 3). Hay, especially alfalfa, is also a common use of cropland. Pastures of smaller parcel size and more intense use generally fall into the agricultural class.

Grassland cover, land that is more expansive in parcel size and less intensely used in grazing livestock, tends to be more localized. There are Level IV ecoregions, most notably the Prairie Coteau and the Glacial Lake Deltas, where grassland is a dominant land cover (Bryce and others, 1998) (fig. 4). Soil and slope conditions are the main reasons for grasslands to persist in these areas, and to a lesser extent the ecoregion in general. The side hills of deeper stream valleys are often used as more expansive pasture. Grassland cover is also found on wildlife habitat areas, such as federally and state owned wildlife refuges and production areas, and other public lands.

Wetlands and water are frequent land covers in the Northern Glaciated Plains but their concentration in number and size may be locally dependent. Most wetlands have some sort of herbaceous vegetation but the amount may depend on seasonal and climatic fluctuations. Water is found mostly in permanent lakes, semi-permanent "wetland" lakes (that may be open water in some years and wetland vegetation in others), and a few reservoirs.

Minor land covers included forest, development, and mining. Forest land cover is more limited and tends to be sub-regionally concentrated. The Level IV ecoregions of the Turtle Mountains, the Prairie

Coteau, and the northern portions of the Glacial Lake Deltas, have patches of forest (Bryce and others, 1998) (fig. 6). Larger riparian areas and farm shelterbelts may also have tree cover but may not be wide enough to map continuously (60 or more meters), although exceptions are common. Developed land cover was found within cities and towns and made up a small fraction of the ecoregion. Most small towns in the Northern Glaciated Plains experienced little physical growth during the time period and many are declining in population and economic diversity. Aggregate mining was also found in the ecoregion because of the glacial geology but tended to be limited in size and frequency.

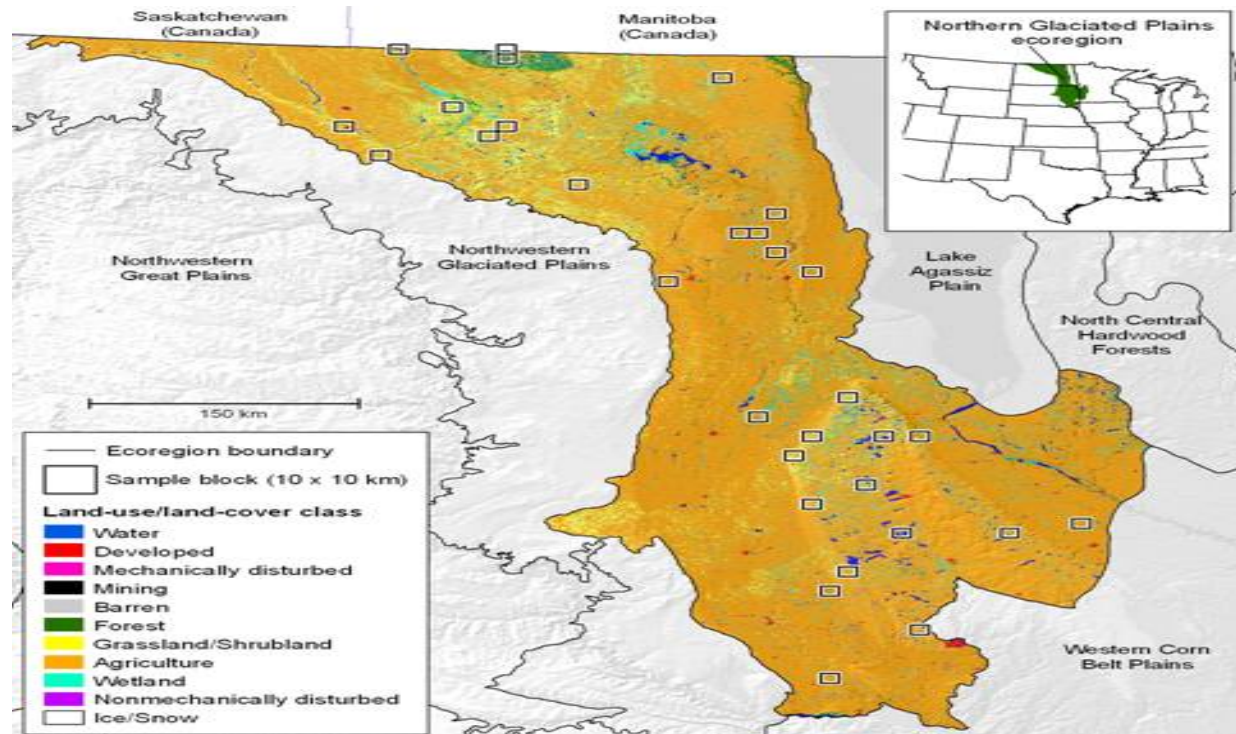


Figure 3. Northern Glaciated Plains

Level IV Ecoregions within the Northern Glaciated Plains (46)

- 46a - The **Pembina Escarpment** is a rugged, forested slope that marks the boundary between the Northern Black Prairies (46g) and the Lake Agassiz Plain (48). Though small, it is a distinctive level IV ecoregion. Originally formed by the undercutting of Cretaceous sandstones by the ancestral Red River, the escarpment was later steepened by glacial scouring. The vista today, of wooded hills with small farms tucked into valleys, is reminiscent of pastoral sections of New England. Streams flowing off the escarpment have high gradients and a cobble substrate.
- 46b - The undulating landscape and abundant wetlands of the **Turtle Mountains** are similar to the Missouri Coteau (42a). However, the Turtle Mountains contain larger, deeper, and more numerous lakes. Additionally, this ecoregion receives about 10 inches more precipitation than the surrounding drift plains; thus, it supports a forest cover of aspen, birch, burr oak, elm, and ash. The forest soils are erodible and poorly suited for cropland, though there is some clearing for pastureland.
- 46c - The **Glacial Lake Basins** were once occupied by Lake Souris, Devils Lake, and Lake Dakota. These proglacial lakes were formed when major stream or river drainages were blocked by

glacial ice during the Pleistocene. The smooth topography of the Glacial Lake Basins, even flatter than the surrounding drift plains (ecoregions 46g, 46i, and 46n), resulted from the slow buildup of water-laid sediments. The level, deep soils on the lake plains are intensively cultivated. In the north, the primary crops are spring wheat, other small grains, and sunflowers; in the Lake Dakota basin of South Dakota, corn and soybeans are more prevalent.

- 46d - The **Glacial Lake Deltas** were deposited by rivers entering glacial lake basins (e.g., Glacial Lake Souris, Devils Lake, and Lake Dakota). The heaviest sediments, mostly sand and fine gravel, formed delta fans at the river inlets. As the lake floors were exposed during withdrawal of the glacial ice, wind reworked the sand in some areas into dunes. In contrast to the highly productive, intensively tilled glacial lake plains, the dunes in the delta areas have a thin vegetative cover and a high risk for wind erosion. These areas are used mainly for grazing or irrigated agriculture.
- 46e - The **Tewaukon Dead Ice Moraine** is a continuation of the Prairie Coteau (46k) that extends below the level of the Prairie Coteau Escarpment (46l). A high density of semipermanent wetlands provide feeding and nesting habitat for dabbling ducks (blue-winged teal and mallard), and diving ducks (redhead and canvasback). Most upland areas are used for cultivated crops.
- 46f - The **End Moraine Complex** is a concentration of glacial features in east central North Dakota. Blue Mountain and Devils Lake Mountain are composed of blocks of surficial material scraped off and thrust up by the continental glacier at the south end of the Devils Lake basin. In the western part of the ecoregion, patches of stagnation moraine similar to the Missouri Coteau (42a) have high wetland densities. On the moraines south of Devils Lake basin, favorable precipitation, aspect, and slightly higher elevations result in wooded lake margins and morainal ridges.
- 46g - The **Northern Black Prairie** represents a broad phenological transition zone marking the introduction from the north of a boreal influence in climate. Aspen and birch appear in wooded areas, willows grow on wetland perimeters, and rough fescue, common to the Rocky Mountain foothills, becomes evident in grassland associations. This ecoregion has the shortest growing season and the lowest January temperatures of any level IV ecoregion in the Dakotas. Most of the area is used for growing small grains, with durum wheat being a major crop.
- 46h - The Souris and Des Lacs Rivers generally divide the **Northern Dark Brown Prairie** from the Northern Black Prairie (46g). These ecoregions differ in precipitation, soil, and vegetation characteristics. The Souris River is within the broad transitional zone between subhumid and semiarid climatic conditions. Soils west of the Souris River developed under drier conditions than those soils further east; they have less organic material which gives them a lighter color. In addition, crop and native grass production is generally lower than in ecoregions further east.
- 46i - On the **Drift Plains**, the retreating Wisconsinan glaciers left a subtle undulating topography and a thick mantle of glacial till. A greater proportion of temporary and seasonal wetlands are found on the drift plains than in the coteau areas, where semipermanent wetlands are numerous. Because of the productive soil and level topography, this ecoregion is almost entirely cultivated, with many wetlands drained or simply tilled and planted. However, valuable

waterfowl habitat still remains, concentrated in state and federally sponsored duck production areas. The historic grassland on the Drift Plains was a transitional mix of tallgrass and shortgrass prairie. The prairie grasses have been largely replaced by fields of spring wheat, barley, sunflowers, and alfalfa.

- 46j - The disjunct areas of **Glacial Outwash** differ from outwash areas on the Missouri Coteau (42a) in that they generally have a smoother topography. The soils are highly permeable with low water holding capacity. Areas of excessive soil permeability have a poor to fair potential for dryland crop production. Some areas are used for irrigated agriculture. The risk for blowing soil in droughty areas is reduced by retaining native range grasses like little bluestem, needleandthread, and green needlegrass.
- 46l - The **Prairie Coteau Escarpment** ecoregion, though small, is a distinctive ecosystem, rising 300 to 600 feet in elevation from the Minnesota River valley to the brow of the Prairie Coteau (46k). The elevation, broken topography, and sufficient precipitation favor dense deciduous forest growth in riparian areas. Cool, perennial streams flow off the escarpment, providing habitats and oxygenated water not found elsewhere in eastern South Dakota (and a small portion of SE North Dakota).
- 46o - Thick glacial drift composes the level terrain of the **Minnesota River Prairie**. Wetlands are common, though they are fewer and less persistent than those in the neighboring stagnation moraines (ecoregions 46e and 46k). The desiccating winds and historic fire regime promoted the prairie ecosystem in this region; however, it is transitional to woodland that occurs to the north and east in Minnesota. Today, the original tallgrass prairie has been replaced by intensive agriculture for grain, corn and soybeans

Level III Ecoregion Summary – Lake Agassiz Plain (48)

<https://landcovertrends.usgs.gov/gp/eco48Report.html>

The Lake Agassiz Plain is located along eastern North Dakota, northwest Minnesota, and a small portion of northeastern South Dakota and covers approximately 40,636 km² (15,690 mi²) (fig 4). The current land forms were created approximately ten thousand years ago when the great continental glaciers of North America started to recede to the north. Blocked by large ice sheets, the melting ice formed many large glacial lakes. The last proglacial lake to fill the modern day Red River Valley was Glacial Lake Agassiz. What remains today is an extremely flat lake plain, with an average gradient of about 15 cm (6 in) per mile, a lake washed till plain, and gently rolling uplands along the eastern and western edges of the Red River Valley (The Red River Basin Commission). Due to its poorly defined floodplains, the Red River Valley has experienced numerous floods throughout its young geologic history.

The ecoregion has a continental climate with January reporting an average low temperature of approximately -22° C (-8° F) and an average high temperature of approximately -11° C (12° F); while July's average low temperature is approximately 13° C (56° F) and an average high temperature of approximately 28° C (82° F). The number of frost-free days ranges from 95 to 125 days and the average annual precipitation is approximately 53 cm (21 in).

By the mid 19th century, the native tallgrass prairie of the Red River Valley had been replaced by agriculture. The rich, deep loamy soils combined with an extensive man-made drainage network (fig. 2),

designed to remove surface water quickly from agricultural lands, have enabled the Red River Valley to become one of the most productive agricultural regions within the Great Plains. The major crops produced throughout the Lake Agassiz Plain include potatoes, sugar beets, sunflowers, wheat, barley, corn, and soybeans. Pasture and hay are common in areas of marginal soils away from the more fertile lands in the valley.

Secondary land covers include grassland/shrubland, forest, and wetlands. These land covers tend to be located away from the high intensity agriculture found along the Red River Valley, with the exception of riparian forest cover (fig. 4). Grassland/shrubland land cover is located primarily in the lake washed till plains, specifically on the beach ridges and sand deltas on the periphery of post-glacial Lake Agassiz (Bryce and others, 1998). Wetland and forest cover were found more commonly in the northeast uplands area of the ecoregion where soils are not as rich. One of the largest remaining wetlands lies within this area as part of the Lake Agassiz National Wildlife Refuge (U.S. Fish & Wildlife Service, 2009)

Developed land cover includes the major metropolitan areas which are situated along the Red River of the North. They are the Fargo, North Dakota/Moorhead, Minnesota urban area with an estimated 2000 population of 137,700 and the Grand Forks, North Dakota/East Grand Forks, Minnesota urban area with an estimated 2000 population of 56,800 (U.S. Census Bureau, 2009). During the study period, the population in both urban areas remained stable, while the population of rural communities declined as the younger residents migrated to larger cities in search of better social and economic opportunities (Bland and others, 2009).

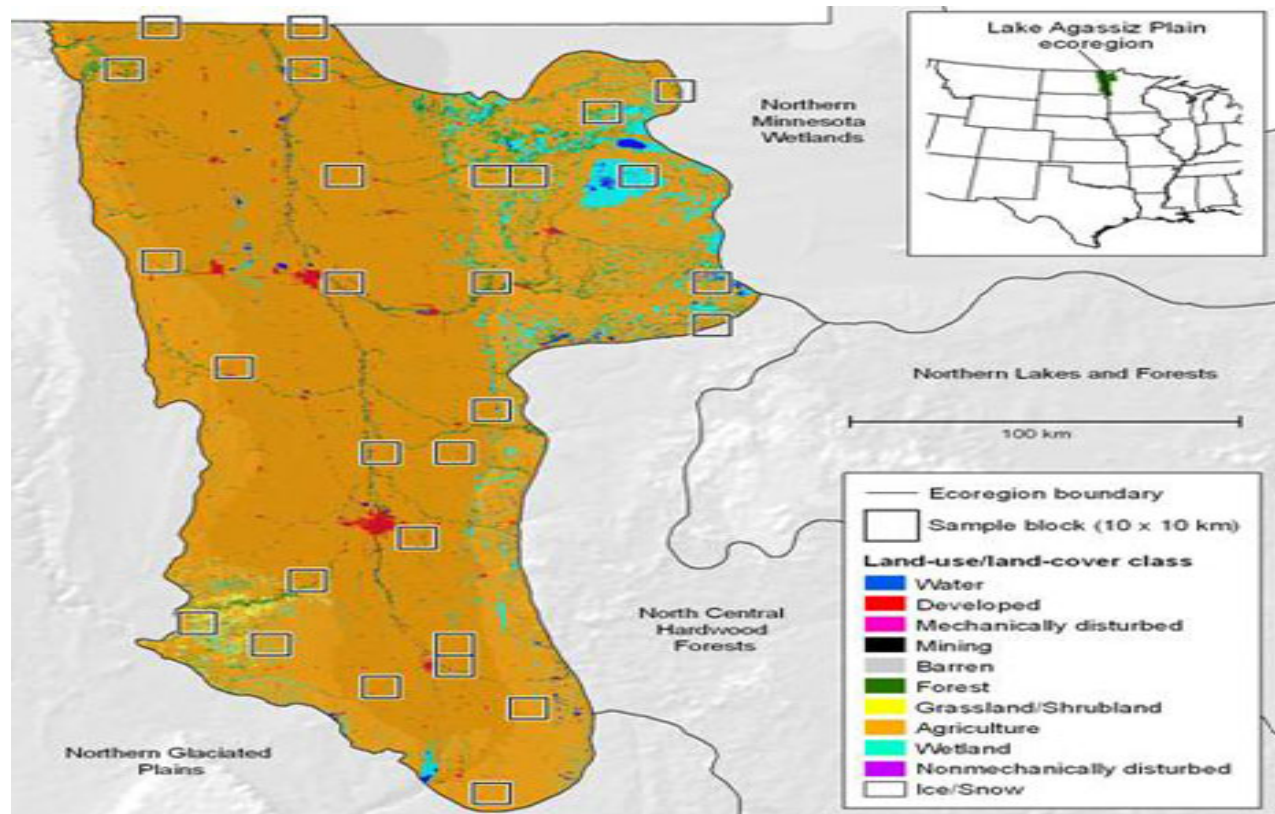


Figure 4. Lake Agassiz Plain

Level IV Ecoregions within the Lake Agassiz Plains (48)

- 48a - From the Pembina Escarpment (46a), the view of the **Glacial Lake Agassiz Basin** is of an extremely flat patchwork of cultivated farmland. Because the Red River of the North has a poorly defined floodplain and very low gradient, flooding can be a problem. Outside of channelized areas in the floodplain, turbid valley streams meander within narrow buffer strips of cottonwood, elm, ash, and willow. Soils range from silty to clayey in texture. Most have high water tables and are extremely productive.
- 48b - The varying relief of the **Sand Deltas and Beach Ridges** ecoregion interrupts the extremely flat and intensively farmed land of the Lake Agassiz Plain (48). The beach ridges appear as parallel lines of sand and gravel formed by wave action on the varying shoreline levels of glacial Lake Agassiz. Three sand deltas, the largest being the Sheyenne River delta in the south, occur where major rivers entered glacial Lake Agassiz and dropped their sediment load. A high erosion risk exists in the sand dune areas.
- 48c - In the **Saline Area** of the Lake Agassiz basin, salty artesian groundwater flows to the surface through glacial till and lacustrine sediments from the underlying beds of Cretaceous sandstone. The regional boundary of ecoregion 48c delineates an area where salt effects are most evident. Other saline areas occur along the tributaries of the Park, Forest, and Turtle rivers in northeast North Dakota. Salt-affected soils in the saline area reduce crop productivity. Many areas are not suitable for farming, but are used for range or wildlife habitat

Literature Cited

Bryce, S.A., Omernik, J.M., Pater, D.E., Ulmer, M., Schaar, J., Freeouf, J., Johnson, R., Kuck, P., and Azevedo, S.H., 1998, Ecoregions of North and South Dakota (color poster with map, descriptive text, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:500,000).

Higgins, K.F., Naugle, D.E., and Forman, K.J., 2002, A Case Study of Changing Land Use Practices in the Northern Great Plains, U.S.A.: An Uncertain Future for Waterbird Conservation, *Waterbirds* 25 (Special Publication 2): 42-50.

Johnson, R.R. and Higgins, K.F., 1997, Wetland resources of eastern South Dakota, Appendix A, Brookings, So. Dak.: South Dakota State University and Jamestown, No. Dak.: Northern Prairie Wildlife Research Center, (version July 22, 1999), accessed October 23, 2008 at [\[http://www.npwrc.usgs.gov/resource/wetlands/sdwet/index.htm\]](http://www.npwrc.usgs.gov/resource/wetlands/sdwet/index.htm).

Kottek, M.J., Grieser, J., Beck, C., Rudolf, B., and Rubel, F., 2006, world map of the Koppen-Geiger climate classification updated, *Meteorologische Zeitschrift* v. 15, no. 3, p. 259-263.

McNab, W.H., and Avers, P.E., 1994, *Ecological subregions of the United States*, Washington, DC: USDA Forest Service

Omernik, J.M., 1987, Ecoregions of the conterminous United States: *Annals of the Association of American Geographers*, v. 77, n. 1, p. 118-125.

Woods, A.J., Omernik, J.M., Nesser, J.A., Sheldon, J., Comstock, J.A., Azevedo, S.H., 2002, Ecoregions of Montana, 2nd edition (color poster with map, descriptive text, summary tables, and photographs). Map scale 1:1,500,000.

U.S. Census Bureau, 2009, American FactFinder, Basic Facts, economic characteristics- employment, income, poverty, and more; general characteristics- population and housing, accessed March 16, 2009, at < http://factfinder.census.gov/servlet/BasicFactsServlet?_basicfacts

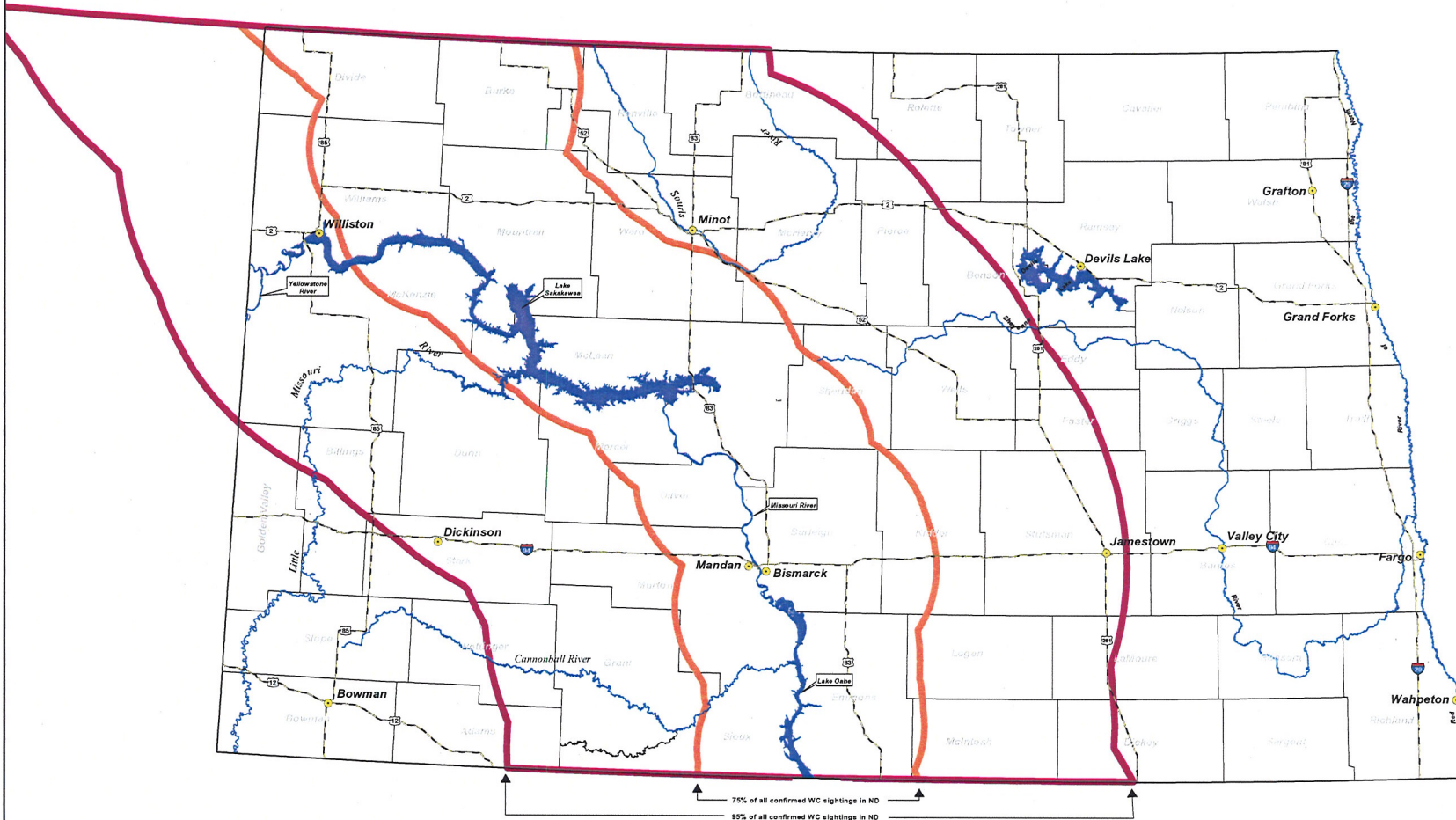
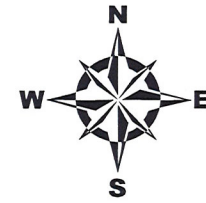
U.S. Fish & Wildlife Service, 2009, Agassiz National Wildlife Refuge, accessed March 15, 2009 at <http://www.fws.gov/refuges/profiles/index.cfm?id=32510>.

APPENDIX F

WHOOPING CRANE MIGRATION CORRIDOR MAP



North Dakota Whooping Crane Migration Corridor



DISCLAIMER:

The USFWS makes no claim as to the accuracy or completeness of the displayed information. Species occurrence and habitat information is provided for illustrative purposes only. Federal action agencies and project proponents should contact the USFWS North Dakota Field Office for more detailed species information and technical assistance in evaluating potential project impacts to fish and wildlife resources.

Map produced 04/21/2010 by USFWS Ecological Services, Bismarck, ND.

-  75% Whooping Crane Migration Corridor
-  95% Whooping Crane Migration Corridor

