

Appendix C – Biological Resources Study Reports and ESA Species Report

**BIOLOGICAL RESOURCES SURVEY REPORT FOR THE
PROPOSED TANANA RIVER RECREATION ACCESS IMPROVEMENTS
PROJECT: AK FNSB TANANA(1)**

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INTRODUCTION

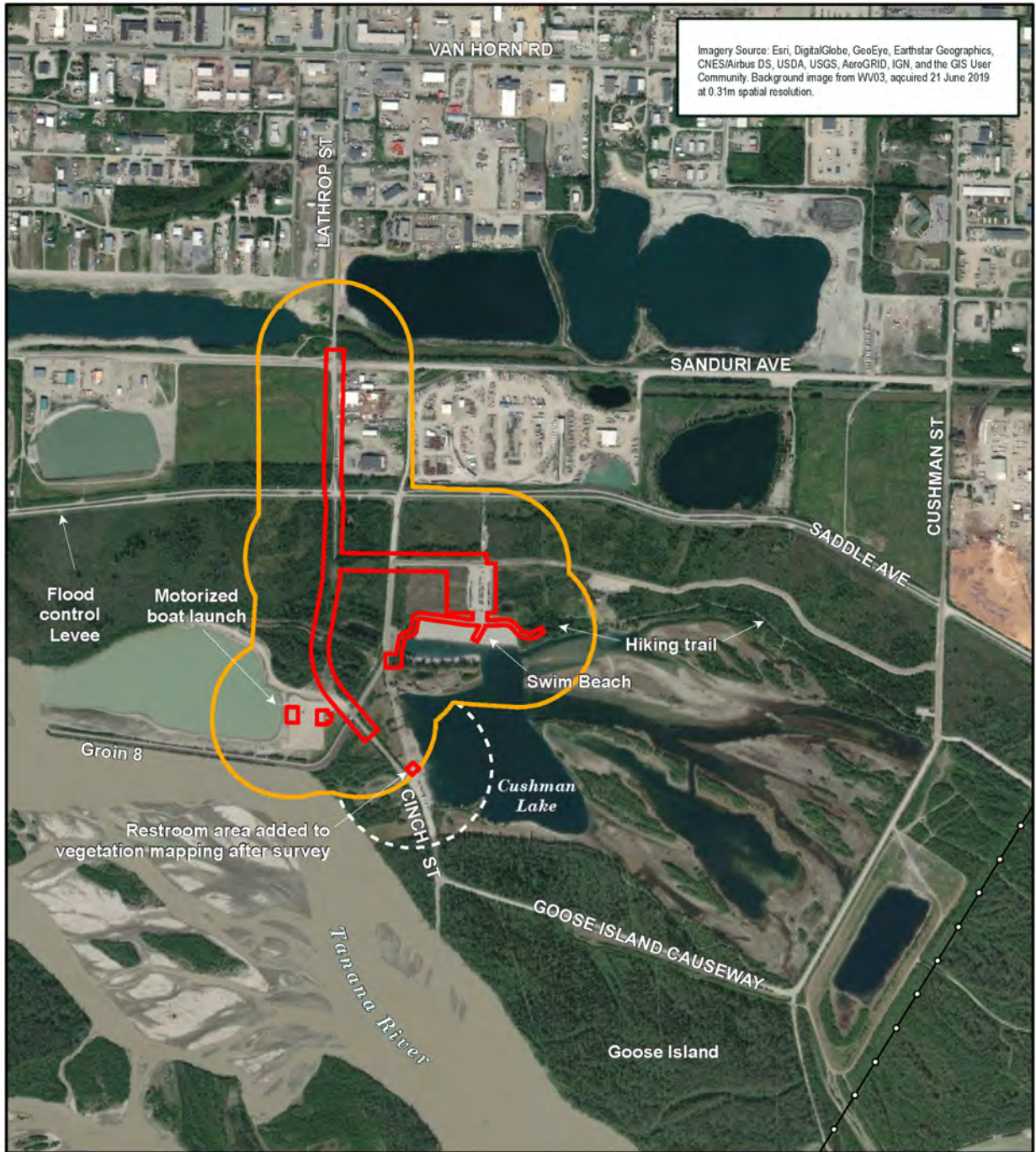
In the proposed Tanana River Recreation Access Improvements Project, the Federal Highway Administration (FHWA), Western Federal Lands Highway Division (WFLHD) is planning to construct a new access road, and improve and expand the hiking trails and user facilities at the Tanana Lakes Recreation Area (TLRA) in Fairbanks, Alaska. PND Engineers Inc. (PND) is the engineering and environmental contractor to WFLHD for the project. ABR, Inc.—Environmental Research & Services (ABR) was subcontracted to provide environmental support, in this case a review and summary of existing data on biological resources that apply to the TLRA, along with site-specific field surveys to collect current data on botanical and wildlife resources in the study area.

A field survey to support the mapping of vegetation in the TLRA study area (see Study Area below) was conducted in July 2020 and included surveys for non-native and invasive plant species as well as an assessment of the possible occurrence of rare plant species. To support permitting of the project and to ensure that WFLHD remains in compliance with the Bald and Golden Eagle Protection Act (BGEPA), a survey for Bald Eagle¹ (*Haliaeetus leucocephalus*) nests in the study area was conducted in early June 2020. A separate survey for breeding birds was also conducted in early June 2020 to determine the occurrence and abundance of breeding birds and species of conservation concern. Data on the occurrence of mammals in the study area were derived from existing information and professional judgement as field surveys for mammals were beyond the scope of the study.

STUDY AREA

The TLRA is located on the south (river) side of the Tanana Flood Control levee in south Fairbanks. The recreation area has been established around Cushman Lake, which was formed by the impounded waters of an active slough of the Tanana River (Figure 1). The Goose Island

¹ Following the formal nomenclature for the common names of recognized by the American Ornithologist's Union in the Check-list of North American Birds (Chesser et al. 2019), the common names of bird species are capitalized throughout this report.



Imagery Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community. Background image from WV03, acquired 21 June 2019 at 0.31m spatial resolution.

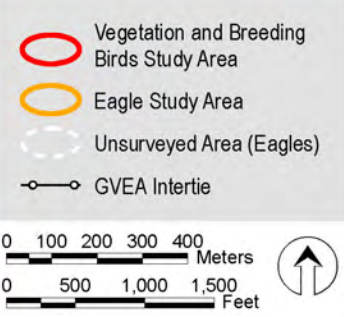


Figure 1.
Study Area Boundaries for the
Vegetation and Avian Surveys
for the Proposed Improvements,
Tanana Lakes Recreation Area.

map prepared by:
 ABR, Inc. — Environmental Research & Services

3 August 2020 Fig1_Tananalakes_Wetlands_SA_20-239.mxd

Causeway (a groin extension of South Cushman Street) and Groin 8 (an extension of Cinch Street) were constructed to create the freshwater Cushman Lake, which is suitable for recreation activities and habitat conservation. Groin 8 also protects the motorized boat launch area. The area was cleaned up and developed after 2012 to include a swimming beach on Cushman Lake, hiking trails, the motorized boat launch that connects with the active channel of the Tanana River, and the non-motorized boat launch on the shore of Cushman Lake (FNSB 2007).

The TLRA biological resources study area was defined in the Statement of Work as the footprints of the proposed infrastructure areas and specific buffer zones, which include a buffer of 75 feet of either side of the proposed road centerlines, a buffer of 25 feet on either side of the proposed trail centerlines, a buffer of 25 feet around the proposed parking areas, and a buffer of 50 feet around the proposed restroom locations (Figure 1). In total, the biological resources study area encompasses approximately 23 acres. The study area includes the areas for the proposed extension of South Lathrop Street and additional road improvements and expansions to access the TLRA, as well as the areas of proposed improvements to the motorized boat launch facilities on the Tanana River, the non-motorized boat launch facilities on the southwest side of Cushman Lake, and the facilities at the main swim beach on the north side of Cushman Lake. With the exception of a short section of South Lathrop Street north of the Tanana Flood Control levee, the majority of the study area is on the Tanana River side of the levee, and occurs on both the east and west sides of Groin 8.

The entire TLRA area is located within the active floodplain of the Tanana River but the hydrology has been substantially altered by the construction of the levee system and the creation of Cushman Lake. Surface water levels in the area are driven by water levels in the Tanana River and rainfall, but frequent flood events typical of undisturbed floodplains are moderated in the TLRA by the groins. Waters in the area have been formed by the impoundment of active sloughs of the Tanana River, the filling of gravel excavation depressions, and there is one flowing slough crossing the study area north of the motorized boat launch area. Overall, the terrain is characterized by flat, riverine-influenced lowlands, with small variations in elevation along the edges of abandoned river channels and depressions. North of the levee along South Lathrop Street, the study area is composed of a fallow field and an industrial park. According to the 2007 TLRA Master Plan, historically the area was composed of over 80% jurisdictional wetlands prior

to any clean-up activities or facility development (FNSB 2007). Surficial deposits are composed of alluvial sands and silts, with shallow organic layers developing in wetland areas. The geomorphology of the area consists of fluvial landscape features. As is much of Interior Alaska, the TLRA is located in a discontinuous permafrost zone.

Much of the TLRA study area has been cleared and is composed of barren gravel fill (see Vegetation and Other Land Cover Types in Results and Discussion below). The vegetated portions of the study area support open broadleaf forests, open mixed white spruce (*Picea glauca*) and paper birch (*Betula neoalaskana*) forest stands, open black spruce (*P. mariana*) and tamarack (*Larix laricina*) forests, low and tall willow (*Salix* spp.) scrub, tall alder (*Alnus incana*) scrub, moist forb and bluejoint grass (*Calamagrostis canadensis*) meadows, and aquatic sedge marshes.

METHODS

BOTANICAL RESOURCES

VEGETATION MAPPING

Field surveys to collect ground-reference information for the mapping of vegetation in the TLRA study area were conducted on 8 and 9 July 2020 by a team of two ABR biologists (Wendy Davis and Julie Parrett). The vegetation field work was conducted concurrently with the wetland surveys, the results of which will be presented in a separate report. The field work involved sampling wetland determination plots and/or map-verification plots (see below) in the various aerial image-signatures within the TLRA study area to collect ground-reference information to support the mapping of vegetation and wetland types. One small (0.14 acres), isolated site in the study area, the non-motorized boat launch area on the southwest side of Cushman Lake, was not surveyed because this area was added to the study area after the survey was completed. The data collected at the wetland determination plots included plant cover estimates, a determination of the applicable vegetation and wetland type, data on soils and hydrology to facilitate final wetland classifications, and documentary photos of each plot. At each wetland determination plot sampled in the field, all vascular species were recorded, and percent cover for each species was estimated to facilitate the determination of vegetation types. The vegetation type at each plot was

assigned to the Level IV vegetation classes of the Alaska Vegetation Classification (Viereck et al. 1992). Additional data were collected at map-verification plots in which a subset of the data collected at wetland determination plots was recorded. Map-verification plots were used to rapidly collect additional data to facilitate the mapping effort for aerial image-signatures that had been previously documented with a full wetland determination plot. Data collected at map-verification plots included cover estimates for the dominant plant species, a determination of the vegetation type, and documentary plot photos. All data except for plot photos were recorded using an Android tablet loaded with an ABR-developed HTML application created specifically for vegetation and wetland surveys in Alaska. Plot photos were recorded on an Android cellular phone using an ABR-developed application that records the plot name and geographic coordinates for each photo.

After the field surveys, vegetation type boundaries were interpreted visually from aerial image-signatures and were digitized on-screen using ArcGIS software. The imagery used was the best data layer provided through ESRI; the imagery was acquired on 21 June 2019 and was of suitable high-resolution for identifying and digitizing the boundaries of vegetation and land cover types. During the mapping process, each map polygon was assigned a Level IV vegetation class following Viereck et al. (1992). The Level IV vegetation types include information on vegetation structure and dominant plant species.

NON-NATIVE PLANT SURVEY

Existing information on non-native plant species in the TLRA study area was requested from the Alaska Center for Conservation Science (ACCS), which maintains the Alaska Exotic Plants Information Clearinghouse (AKEPIC), a database of non-native plant species records in Alaska (ACCS 2020a). The database provides location information on non-native plant collections, an invasiveness ranking score for each species, and extent of the infestation for each field record. AKEPIC data were requested for the TLRA study area and adjacent areas; this included the study area in the floodplain south of the levee and areas immediately surrounding the study area, and for the portion of the study area extending north of the levee along South Lathrop Street to the railroad crossing and the intersection with Sanduri Street.

In addition to the compilation of existing records of non-native plant species, the occurrence of non-native and potentially invasive plant species was documented in the TLRA study area during the course of the vegetation and wetland field surveys described above. Comprehensive plant species lists were compiled at each full wetland determination plot, and additional information was collected at map-verification plots where significant non-native plant infestations were found.

RARE PLANT SPECIES

Rare plant species information for the TLRA study area and adjacent areas, as described above for the non-native plant survey, was requested from ACCS, which also maintains a database of rare plant records in Alaska (ACCS 2020b). In addition to the TLRA study area and immediately adjacent areas, a request for rare plant records within a 100-km radius surrounding TLRA was made to provide additional information on species that have some possibility of occurring in the study area. Full plant species lists for the study area were compiled from the wetland determination and map-verification plot survey data collected in July 2020 and were compared with the ACCS lists to determine if any rare or sensitive species were found in the area. Specific surveys targeted at locating potential populations of rare plants were beyond the scope of this study, as those surveys would require intensive searches focused on suitable habitats for target species.

WILDLIFE RESOURCES

BACKGROUND INFORMATION AND REGULATORY COMPLIANCE

A review of applicable literature, regulations, and existing data was conducted to provide information about the occurrence and status of wildlife (birds and mammals) and threatened or endangered species in the TLRA study area and to supplement the information gathered in the summer 2020 field surveys. Wildlife field surveys were limited to birds during the breeding season. Additional sources of recorded bird observations in the TLRA were used to compile information on those bird species that only occur in the TLRA outside the breeding season (especially during migration). No mammal-focused fieldwork was conducted for this study. All information on the occurrence of mammals in the TLRA study was based on existing literature

and collection records; this information was modified specifically for the study area based on professional judgment and knowledge of the habitats present in the area.

BALD EAGLE SURVEY

To support project permitting and to ensure compliance with the BGEPA, one-day ground-based Bald Eagle nest survey was conducted in the TLRA study area in June 2020. Active Bald Eagle nests and unoccupied or alternate nest structures within a breeding territory are protected under the BGEPA. Active nests are further protected with a buffer from activities that may disturb nesting birds. Bald Eagles have been known to nest in or near the TLRA, though not within the area proposed for improvements.

ABR ornithologist Kristen Rozell conducted a Bald Eagle survey on 2 June 2020. All potential nesting trees within the footprint of the proposed project improvements and a 660-ft buffer surrounding it (Figure 1) were surveyed for eagle nests. This buffer zone size was chosen to correspond to the 660-ft area of no-disturbance required around active eagle nests under the BGEPA. The non-motorized boat launch area on the southwest side of Cushman Lake and the 660-ft buffer surrounding it (Figure 1) was not surveyed for nesting eagles because this area was added to the study area after the survey was completed. Vantage points along existing roads, trails, and especially levees were used to view tall trees suitable for eagle and other raptor nests. All candidate nest trees were scanned using 10×42 binoculars for the presence of stick nests, nesting platforms, and nesting raptors. Navigation in the study area was accomplished using a moving-map application (ESRI Collector for ArcGIS) on an Android tablet computer on which the project footprint and 660-foot survey buffer zone were overlaid on geographically referenced, high-resolution aerial imagery for the study area.

BREEDING BIRD CENSUS

A one-day census of breeding birds was conducted in June 2020 to determine which bird species (primarily landbirds and shorebirds) use the study area and could be most affected by habitat loss or alteration. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) and activities that can harm nesting birds (i.e., land-clearing or construction) must typically be scheduled outside the breeding period (see Regulatory Compliance in Results and Discussion below).

ABR ornithologist Kristen Rozell conducted the breeding bird census on 9 June 2020. Because the TLRA study area is so small and to avoid double-counting of birds, a modified breeding bird census technique was used instead of point-count surveys, such as the U.S. Geological Survey's (USGS's) Alaska Landbird Monitoring System (ALMS) or the Breeding Bird Survey (BBS), which are intended for large study areas and require surveying a predetermined set of points spaced at regular intervals (250 m apart in forested habitats and 500 m in open or shrub habitats). The breeding bird census area included the footprints of the proposed project improvements and the specific buffer zones surrounding them as described above in the Study Area section for the TLRA study area (Figure 1). The census of the proposed road corridor began at the northwestern end of the proposed road improvement area (the intersection of South Lathrop Street, the Alaska Railroad crossing, and Sanduri Avenue) and continued south along the western side of the study area. A small, isolated segment of the study area at the motorized boat launch parking lot at the Tanana River was surveyed for birds prior to continuing again northward along the eastern side of the study area to the industrial area north of the levee. The non-motorized boat launch area on the southwest side of Cushman Lake was not surveyed as this area was added to the study area after the survey was completed. The census of the swim beach, parking area, and surrounding terrain was conducted by following the northern boundary of the study area buffer from west to east and continuing within the buffer zone in a clockwise direction. Except for two small patches of mixed forest, these areas and the adjacent buffer zone are very open, which made it easy to observe all birds in the area.

All bird species seen and/or heard during the census were recorded using an Android tablet loaded with an ABR-developed HTML application created specifically for bird surveys in Alaska. Data collected included the species, number of individuals, sex (when possible), behavior, habitat used (when possible), and whether the birds were observed inside or outside of (adjacent) to the study area boundary. Birds that were observed flying over the study area (in transit) and not using available habitats were recorded separately. Weather and observation conditions during the survey were also recorded.

RESULTS AND DISCUSSION

BOTANICAL RESOURCES

VEGETATION AND OTHER LAND COVER TYPES

In general, the TLRA study area consists of a combination of disturbed and reseeded herbaceous vegetation types, barren gravel fill, undisturbed forest stands, and shrub and marsh types typical of an active riverine floodplain. Broadleaf and mixed broadleaf-needleleaf forests dominate areas of raised and well-drained topography, shrubs and needleleaf forests occur in low-lying, more poorly drained areas that may be underlain by permafrost, and depressions in the area tend to develop into open water types or marsh wetlands. Despite much of the area being located between two flood control groins, there is still evidence of periodic flooding, especially in the western portion of the study area west of Groin 8. Alterations to surface water hydrology from impounded water south of the levee are evident in the eastern portion of the study area (east of Groin 8) surrounding the swim beach and parking lot. Based on the lack of transition in the plant communities in those areas to ones dominated by hydrophytic species, the impoundment flooding is likely to be recent.

In the study area, 13 vegetation and non-vegetated land cover types were identified and mapped (Table 1, Figure 2). The most commonly occurring land cover type is barren gravel fill, which accounts for 41% of the study area. Barren gravel fill includes the existing access road, parking lots, and the swim beach. Some portions of filled areas have been reseeded resulting in partially vegetated surfaces. These areas are characterized by sparse cover of seeded grasses and colonizing weed species (see Non-native Plant Species below) and account for an additional 2% of the study area. Open water was mapped in less than 1% of the study area and includes a small outlet draining a shrub wetland on the east side of the swim beach, an active slough draining Cushman Lake to the Tanana River, and two small isolated and inundated depressions.

The most common vegetation type in the study area is Open Low Willow, encompassing 11% of the study area. Open Low Willow is dominated by a variety of typical low-growing, floodplain willow species, including *Salix glauca*, *S. niphoclada*, and *S. pulchra*. These species are recolonizing previously cleared sites, especially in the immediate area surrounding the main parking lot at the swim beach. The tall shrub classes dominated by alder include Open Tall Alder

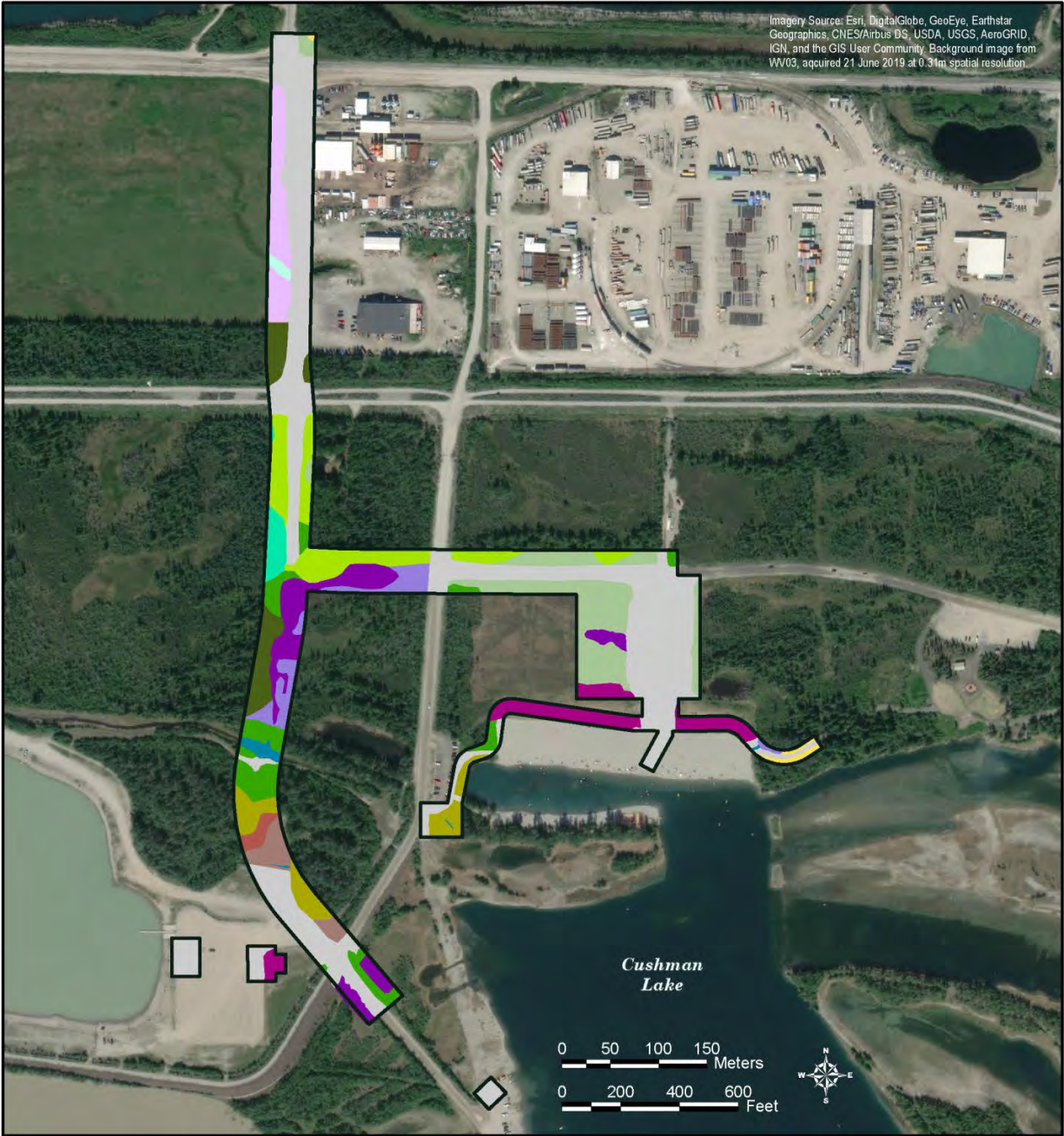
Table 1. Vegetation and land cover types, and acreages for each mapped in the Tanana Lakes Recreation Area biological resources study area, Fairbanks, Alaska, 2020.

| Vegetation/Land Cover Type | ABR Vegetation/Land Cover Code | Level IV Vegetation Code ^a | Acres | % of Study Area |
|----------------------------|--------------------------------------|---|-------|-----------------|
| Barren | bbg | N/A ^b | 9.49 | 41.22 |
| Partially Vegetated | bpv | N/A ^b | 0.45 | 1.95 |
| Open Balsam Poplar | fbop | I.B.2.C | 0.94 | 4.10 |
| Open Spruce-Paper Birch | fmosb | I.C.2.A | 1.82 | 7.91 |
| Open Spruce-Balsam Poplar | fmosp | I.C.2.D | 0.16 | 0.70 |
| Open Black Spruce | fnobs | I.A.2.F | 0.93 | 4.04 |
| Open Black Spruce-Tamarack | fnobt | I.A.2.H | 0.40 | 1.73 |
| Seral Herbs | hfds | II.B.1.A | 1.25 | 5.45 |
| Moist Forb Meadow | hfm | III.B.2 | 1.13 | 4.91 |
| Bluejoint-Herb | hgmbh | III.A.2.B | 0.09 | 0.38 |
| Fresh Sedge Marsh | hgwfs | III.A.3.D | 1.43 | 6.21 |
| Open Low Willow | slow | II.C.2.G | 2.47 | 10.74 |
| Open Tall Alder | stoa | II.B.2.B | 0.19 | 0.82 |
| Open Tall Shrub Swamp | stoss | II.B.2.F | 0.76 | 3.30 |
| Open Tall Willow | stow | II.B.2.A | 1.34 | 5.82 |
| Water | w | N/A ^b | 0.17 | 0.73 |
| Totals | | | 23.02 | 100 |

^a Viereck et al. (1992)

^b No Level IV vegetation codes exist for unvegetated land cover types.

and Open Tall Shrub Swamp. These two types combined cover 4% of the study area. Another tall shrub class, Open Tall Willow, is variably dominated by *Salix alaxensis*, *S. bebbiana*, *S. interior*, and *S. lasiandra*, and encompasses 6% of the study area. These tall shrub types occur most commonly in the least disturbed portions of the study area, along the edges of riparian areas or bordering marsh wetlands. Forest classes in the study area include Open Balsam Poplar (*Populus balsamifera*), Open Spruce-Paper Birch, Open Spruce-Balsam Poplar, Open Black Spruce, and Open Black Spruce-Tamarack. Combined, these forest types account for 19% of the study area. Forest stands occupy the uncleared and undisturbed portions of the study area, with the broadleaf and mixed broadleaf-needleleaf types typically occurring on raised abandoned banks and needleleaf forest types dominant in the low-lying, less well-drained areas.



| Vegetation Class* | | |
|---------------------|-----------------------|----------------------------|
| Barren | Open Low Willow | Open Spruce-Paper Birch |
| Partially Vegetated | Open Tall Alder | Open Spruce-Balsam Poplar |
| Seral Herbs | Open Tall Shrub Swamp | Open Black Spruce |
| Moist Forb Meadow | Open Tall Willow | Open Black Spruce-Tamarack |
| Bluejoint-Herb | Open Balsam Poplar | Water |
| Fresh Sedge Marsh | | |

*Vegetation classes based on Level IV vegetation types as described in Viereck 1992.

Figure 2.
Vegetation Classes and Landcover Types
of the Proposed Tanana Lakes
Recreation Area Improvement Project,
Fairbanks, Alaska, 2020

map prepared by:
 ABR, Inc. — Environmental Research & Services

28 July 2020 Fig2_Tananalakes_Vegetation_20-239.mxd

Fresh Sedge Marsh encompasses 6% of the study area and is primarily located in the undisturbed area proposed for the new road alignment (the southward extension of South Lathrop Street). The Fresh Sedge Marsh type was flooded at the time of sampling and supported obligate wetland sedges and grasses with co-dominant and obligate wetland forb species. Moist herbaceous vegetation types in the study area include Moist Forb Meadow and Bluejoint-Herb Meadow. The single well-drained and dry herbaceous type is Seral Herbs, which is dominated by early successional forbs. These three herbaceous types together encompass 11% of the study area and occur exclusively on disturbed and often reseeded surfaces, including the fallow field adjacent to South Lathrop Street and the vegetated berm adjacent to the swim beach.

NON-NATIVE PLANT SPECIES

In the AKEPIC database maintained by ACCS, there are 65 records of nine invasive species found within the boundaries of the TLRA and the southern end of South Lathrop Street. During the field survey in July 2020, we recorded 13 non-native plant species in various locations throughout the study area (Table 2). The majority of the occurrences were concentrated around the swim beach parking lot and berm and the fallow field along the western edge of South Lathrop Street. Four of the recorded species—White Sweetclover (*Melilotus albus*), European Bird Cherry (*Prunus padus*), Field Sow-Thistle (*Sonchus arvensis*), and Bird Vetch (*Vicia cracca*)—have invasiveness ranking scores greater than 70, which indicates a weed with the potential to spread and affect communities of native plant species (Table 2; ACCS 2020a). As noted in Table 2, all four species already have established populations in the study area and should be considered a risk for spread into undisturbed areas (e.g., with the construction of the proposed new access road).

During the July 2020 survey, we recorded all nine species that are found in the AKEPIC database for the TLRA study area except for *Elodea* sp. (Waterweed). *Elodea* is known to occur in both lotic and lentic waters in the Chena River basin (Plant Materials Center 2017) and is likely to be of concern for spreading within the TLRA study area. An Invasive Species Management Plan (Heidemann 2010) was prepared for the TLRA prior to clean-up and development of the recreation area after 2012. In that plan, seven high-priority invasive plant species were noted to occur at the site and it was expected that best management practices would

Table 2. Non-native plant species recorded within the Tanana Lakes Recreation Area biological resources study area, Fairbanks, Alaska, 2020.

| Species | Common Name | Invasiveness Ranking | Notes |
|-------------------------|-----------------------|----------------------|--|
| <i>Crepis tectorum</i> | Narrowleaf Hawksbeard | 56 | Recorded on the edges of gravel fill at the main swim beach parking lot. A few individual plants growing along with larger populations of White Sweetclover. Likely to occur in similar situations throughout the study area. |
| <i>Melilotus albus</i> | White Sweetclover | 81 | Recorded at the edge of the main parking lot, on the vegetated berm adjacent to the beach and in the fallow field along S. Lathrop Street. Infestations range from a few individual plants to dense stands. Occurs throughout the study area on similar, well-drained gravel fill substrates. |
| <i>Plantago major</i> | Great Plantain | 44 | Recorded occurrences on the berm adjacent to the swim beach and in the fallow field along S. Lathrop Street. Usually individual plants with low overall cover within the established plant community. Likely to occur throughout the study area on well drained, vegetated gravel fill surfaces. |
| <i>Poa pratensis</i> | Kentucky Blue Grass | 52 | Recorded occurrence as isolated tussocks on the vegetated berm adjacent to the swim beach. Most likely introduced via application of seed mixes and may occur on similar vegetated gravel fill surfaces throughout the study area. |
| <i>Potentilla recta</i> | Sulphur Cinquefoil | not available | Recorded as an individual plant on the vegetated berm adjacent to the swim beach. |
| <i>Prunus padus</i> | European Bird Cherry | 74 | Recorded on either side of the hiking trail running east from the swim beach and along the active channel draining from Cushman Lake. Infestations range from individuals within a shrub canopy to the dominant tall shrub species. Likely to occur throughout the study area particularly bordering lotic or lentic waters. |

Table 2. Continued.

| Species | Common Name | Invasiveness Ranking | Notes |
|-----------------------------|---------------------|----------------------|---|
| <i>Rorippa austriaca</i> | Creeping Fieldcress | not available | Recorded as individual plants within the fallow field along S. Lathrop. Potentially limited to abandoned agricultural areas. |
| <i>Senecio viscosus</i> | Sticky Ragwort | not available | Recorded as individual plants within the fallow field along S. Lathrop. Potentially limited to abandoned agricultural areas. |
| <i>Sonchus arvensis</i> | Field Sow-Thistle | 73 | Recorded as a dominant forb species within the fallow field along S. Lathrop. Potential to occur on vegetated, disturbed surfaces throughout the study area. |
| <i>Taraxacum officinale</i> | Common Dandelion | 58 | Recorded as a few individual plants on the vegetated berm adjacent to the swim beach. Likely to occur on similar surfaces throughout the study area. |
| <i>Trifolium hybridum</i> | Alsike Clover | 57 | Recorded as well established populations in the fallow field on S. Lathrop. Likely to occur in similar substrates throughout the study area. |
| <i>Vicia cracca</i> | Bird Vetch | 73 | Recorded in fallow field on S. Lathrop, roadside edges, on the vegetated berm adjacent to the swim beach and gravel edges of the main parking lot. Some populations are dense stands with no other co-dominant species. Has the potential to spread widely throughout the study area on newly disturbed surfaces. |

be needed to control the spread of those highly invasive species. In July 2020, we recorded five of the seven species noted in Heidemann (2010); Yellow Toadflax (*Linaria vulgaris*) and Quackgrass (*Elymus repens*) were not observed in 2020 but are likely to be present in the study area.

RARE PLANT SPECIES

In this discussion of rare plants, we are assessing only those species that have state rarity listings of S1 (critically imperiled or endangered), S2 (imperiled), S1/S2, S3 (rare or uncommon) or S2/S3 (ACCS 2019). Species with state listings of S4 (apparently secure) or S3/S4 were not included. None of these rare and uncommon species that are tracked by ACCS are listed federally or by the State of Alaska as endangered, threatened, or candidate species. In the request for rare plant information from the ACCS rare plant database, no documented records of any rare vascular plant species (those with listings of S3 or rarer) in the TLRA study area were found. Similarly, during the field surveys in July 2020 to support the mapping of vegetation and wetlands in the area, we did not find any rare vascular plants. In the search for rare plants within a 100-km radius of the study area, a set of 28 species for which suitable habitat exists in the TLRA were identified (Table 3). Although suitable habitat for these species occurs in the study area, to date none of these species have been recorded there.

WILDLIFE RESOURCES

BACKGROUND INFORMATION

In Fairbanks, the TLRA is well known as a hotspot for migratory birds during spring and fall, and an active and experienced community of local birders regularly visit the TLRA and record their sightings in eBird (an online bird observation program created by Cornell Lab of Ornithology). Using this database of observations (eBird 2020), we prepared a list of all bird species that have been reported at TLRA, excluding rare and vagrant species that, because of their very low numbers in the area, are unlikely to be affected by the proposed improvements in the recreation area. This modified list includes 131 bird species composed of 34 waterbirds (waterfowl, loons, grebes, and cranes), 7 seabirds (gulls, terns, and jaegers), 20 shorebirds, 14 raptors (eagles, hawks, falcons, and owls), and 56 landbirds (mostly passerines; Table 4).

Table 3. Rare vascular plant taxa collected within a 100-km radius of the Tanana Lakes Recreation Area biological resources study area, Fairbanks, Alaska.^a None of these species were found in the study area.

| Family | Taxon | State Rank ^b | Federal Listings |
|-------------------------|---|-------------------------|------------------|
| <i>Amaranthaceae</i> | <i>Corispermum ochotense</i> | S3 | |
| <i>Apiaceae</i> | <i>Cicuta bulbifera</i> | S3 | |
| <i>Apocynaceae</i> | <i>Apocynum androsaemifolium</i> | S3 | |
| <i>Asteraceae</i> | <i>Artemisia tanacetifolia</i> | S3 | BLM Watchlist |
| <i>Asteraceae</i> | <i>Bidens tripartita</i> | S1 | |
| <i>Brassicaceae</i> | <i>Rorippa curvisiliqua</i> | S1S2 | |
| <i>Cyperaceae</i> | <i>Carex atratiformis</i> | S3 | |
| <i>Cyperaceae</i> | <i>Carex bebbii</i> | S1S2 | |
| <i>Cyperaceae</i> | <i>Carex deflexa</i> var. <i>deflexa</i> | S2S3 | BLM Watchlist |
| <i>Cyperaceae</i> | <i>Carex deweyana</i> var. <i>deweyana</i> | S2S3 | |
| <i>Cyperaceae</i> | <i>Carex interior</i> | S3 | |
| <i>Fabaceae</i> | <i>Astragalus williamsii</i> | S3 | |
| <i>Gentianaceae</i> | <i>Gentianopsis barbata</i> ssp. <i>barbata</i> | S3Q | BLM Watchlist |
| <i>Hydrocharitaceae</i> | <i>Najas flexilis</i> | S3 | |
| <i>Juncaceae</i> | <i>Juncus tenuis</i> | S2 | BLM Watchlist |
| <i>Ophioglossaceae</i> | <i>Botrychium alaskense</i> | S3 | BLM Watchlist |
| <i>Ophioglossaceae</i> | <i>Botrychium yaaxudakeit</i> | S2 | USFS Sensitive |
| <i>Poaceae</i> | <i>Agrostis clavata</i> | S1S2 | |
| <i>Poaceae</i> | <i>Glyceria striata</i> | S3 | |
| <i>Poaceae</i> | <i>Poa porsildii</i> | S2S3 | BLM Sensitive |
| <i>Poaceae</i> | <i>Poa secunda</i> ssp. <i>secunda</i> | S2 | |
| <i>Poaceae</i> | <i>Trisetum sibiricum</i> ssp. <i>litorale</i> | S3 | |
| <i>Polypodiaceae</i> | <i>Polypodium sibiricum</i> | S3 | |
| <i>Potamogetonaceae</i> | <i>Potamogeton obtusifolius</i> | S3 | |
| <i>Rosaceae</i> | <i>Rosa woodsii</i> ssp. <i>woodsii</i> | S2S3 | BLM Watchlist |
| <i>Salicaceae</i> | <i>Salix athabascensis</i> | S2 | |
| <i>Salicaceae</i> | <i>Salix candida</i> | S3 | |
| <i>Salicaceae</i> | <i>Salix planifolia</i> | S2 | BLM Watchlist |

^a Data from the Rare Plant Portal database maintained by the Alaska Center for Conservation Science (ACCS 2020b).

^b S1 = critically imperiled or endangered in the state, S2 = imperiled, and S3 = rare or uncommon. Q = taxonomic distinctiveness is questionable.

Table 4. Bird species recorded in and mammal species likely to occur in the Tanana Lakes Recreation Area, Fairbanks, Alaska.^a

| Species Group/Common Name | Scientific Name | Abundance ^c | Conservation Status ^b | |
|-----------------------------|-------------------------------------|------------------------|----------------------------------|--------------|
| | | | USFWS BCC | ADFG At-risk |
| BIRDS | | | | |
| Waterbirds | | | | |
| Snow Goose | <i>Anser caerulescens</i> | C | | |
| Greater White-fronted Goose | <i>Anser albifrons</i> | C | | |
| Cackling Goose | <i>Branta hutchinsii</i> | U | | |
| Canada Goose | <i>Branta canadensis</i> | C | | |
| Trumpeter Swan | <i>Cygnus buccinator</i> | C | | |
| Tundra Swan | <i>Cygnus columbianus</i> | C | | |
| Blue-winged Teal | <i>Anas discors</i> | C | | |
| Northern Shoveler | <i>Spatula clypeata</i> | C | | |
| Gadwall | <i>Mareca strepera</i> | C | | |
| Eurasian Wigeon | <i>Mareca penelope</i> | U | | |
| American Wigeon | <i>Mareca americana</i> | C | | |
| Mallard | <i>Anas platyrhynchos</i> | C | | |
| Northern Pintail | <i>Anas acuta</i> | C | | |
| Green-winged Teal | <i>Anas crecca</i> | C | | |
| Canvasback | <i>Aythya valisineria</i> | C | | |
| Redhead | <i>Aythya americana</i> | U | | |
| Ring-necked Duck | <i>Aythya collaris</i> | C | | |
| Greater Scaup | <i>Aythya marila</i> | C | | |
| Lesser Scaup | <i>Aythya affinis</i> | C | | |
| Surf Scoter | <i>Melanitta perspicillata</i> | C | | |
| White-winged Scoter | <i>Melanitta deglandi</i> | C | | |
| Black Scoter | <i>Melanitta americana</i> | U | | X |
| Long-tailed Duck | <i>Clangula hyemalis</i> | U | | |
| Bufflehead | <i>Bucephala albeola</i> | C | | |
| Common Goldeneye | <i>Bucephala clangula</i> | C | | |
| Barrow's Goldeneye | <i>Bucephala islandica</i> | C | | |
| Common Merganser | <i>Mergus merganser</i> | C | | |
| Red-breasted Merganser | <i>Mergus serrator</i> | U | | |
| Horned Grebe | <i>Podiceps auritus</i> | C | X | |
| Red-necked Grebe | <i>Podiceps grisegena</i> | C | | |
| Sandhill Crane | <i>Antigone canadensis</i> | C | | |
| Red-throated Loon | <i>Gavia stellata</i> | U | | X |
| Pacific Loon | <i>Gavia pacifica</i> | U | | |
| Common Loon | <i>Gavia immer</i> | C | | |
| Seabirds | | | | |
| Long-tailed Jaeger | <i>Stercorarius longicaudus</i> | U | | |
| Bonaparte's Gull | <i>Chroicocephalus philadelphia</i> | C | | |

Table 4. Continued.

| Species Group/Common Name ^b | Scientific Name | Abundance ^c | Conservation Status ^b | |
|--|---------------------------------|------------------------|----------------------------------|--------------|
| | | | USFWS BCC | ADFG At-risk |
| Mew Gull | <i>Larus canus</i> | C | | |
| Herring Gull | <i>Larus argentatus</i> | C | | X |
| Glaucous-winged Gull | <i>Larus glaucescens</i> | U | | |
| Glaucous Gull | <i>Larus hyperboreus</i> | U | | |
| Arctic Tern | <i>Sterna paradisaea</i> | C | | |
| Shorebirds | | | | |
| Black-bellied Plover | <i>Pluvialis squatarola</i> | U | | |
| American Golden-Plover | <i>Pluvialis dominica</i> | U | | X |
| Killdeer | <i>Charadrius vociferus</i> | C | | X |
| Semipalmated Plover | <i>Charadrius semipalmatus</i> | C | | |
| Whimbrel | <i>Numenius phaeopus</i> | C | X | X |
| Hudsonian Godwit | <i>Limosa haemastica</i> | C | | X |
| Stilt Sandpiper | <i>Calidris himantopus</i> | U | | |
| Dunlin | <i>Calidris alpina</i> | U | | X |
| Baird's Sandpiper | <i>Calidris bairdii</i> | U | | |
| Least Sandpiper | <i>Calidris minutilla</i> | C | | |
| Pectoral Sandpiper | <i>Calidris melanotos</i> | C | | X |
| Semipalmated Sandpiper | <i>Calidris pusilla</i> | C | | X |
| Western Sandpiper | <i>Calidris mauri</i> | U | | X |
| Long-billed Dowitcher | <i>Limnodromus scolopaceus</i> | C | | |
| Wilson's Snipe | <i>Gallinago delicata</i> | C | | |
| Spotted Sandpiper | <i>Actitis macularius</i> | C | | X |
| Solitary Sandpiper | <i>Tringa solitaria</i> | C | X | X |
| Lesser Yellowlegs | <i>Tringa flavipes</i> | C | | X |
| Greater Yellowlegs | <i>Tringa melanoleuca</i> | U | | |
| Red-necked Phalarope | <i>Phalaropus lobatus</i> | U | | |
| Raptors | | | | |
| Osprey | <i>Pandion haliaetus</i> | C | | |
| Golden Eagle | <i>Aquila chrysaetos</i> | U | | X |
| Northern Harrier | <i>Circus hudsonius</i> | C | | X |
| Sharp-shinned Hawk | <i>Accipiter striatus</i> | C | | |
| Northern Goshawk | <i>Accipiter gentilis</i> | C | | |
| Bald Eagle | <i>Haliaeetus leucocephalus</i> | C | | |
| Red-tailed Hawk | <i>Buteo jamaicensis</i> | C | | X |
| Rough-legged Hawk | <i>Buteo lagopus</i> | U | | |
| Great Horned Owl | <i>Bubo virginianus</i> | C | | |
| Short-eared Owl | <i>Asio flammeus</i> | U | | X |
| Boreal Owl | <i>Aegolius funereus</i> | U | | X |
| American Kestrel | <i>Falco sparverius</i> | C | | X |
| Merlin | <i>Falco columbarius</i> | C | | |
| Peregrine Falcon | <i>Falco peregrinus</i> | C | X | |

Table 4. Continued.

| Species Group/Common Name ^b | Scientific Name | Abundance ^c | Conservation Status ^b | |
|--|---------------------------------|------------------------|----------------------------------|--------------|
| | | | USFWS BCC | ADFG At-risk |
| Landbirds | | | | |
| Ruffed Grouse | <i>Bonasa umbellus</i> | C | | |
| Spruce Grouse | <i>Falcapennis canadensis</i> | U | | |
| Sharp-tailed Grouse | <i>Tympanuchus phasianellus</i> | U | | |
| Rock Pigeon | <i>Columba livia</i> | U | | |
| Belted Kingfisher | <i>Megaceryle alcyon</i> | U | | X |
| American Three-toed | <i>Picoides dorsalis</i> | C | | |
| Black-backed Woodpecker | <i>Picoides arcticus</i> | U | | |
| Downy Woodpecker | <i>Dryobates pubescens</i> | C | | |
| Hairy Woodpecker | <i>Dryobates villosus</i> | C | | |
| Northern Flicker | <i>Colaptes auratus</i> | C | | X |
| Olive-sided Flycatcher | <i>Contopus cooperi</i> | U | | X |
| Western Wood-Pewee | <i>Contopus sordidulus</i> | U | | X |
| Alder Flycatcher | <i>Empidonax alnorum</i> | C | | X |
| Hammond's Flycatcher | <i>Empidonax hammondii</i> | C | | |
| Say's Phoebe | <i>Sayornis saya</i> | U | | |
| Northern Shrike | <i>Lanius borealis</i> | C | | |
| Canada Jay | <i>Perisoreus canadensis</i> | C | | |
| Black-billed Magpie | <i>Pica hudsonia</i> | C | | |
| Common Raven | <i>Corvus corax</i> | C | | |
| Bank Swallow | <i>Riparia riparia</i> | C | | X |
| Tree Swallow | <i>Tachycineta bicolor</i> | C | | X |
| Violet-green Swallow | <i>Tachycineta thalassina</i> | C | | |
| Cliff Swallow | <i>Petrochelidon pyrrhonota</i> | C | | |
| Black-capped Chickadee | <i>Poecile atricapillus</i> | C | | |
| Boreal Chickadee | <i>Poecile hudsonicus</i> | C | | X |
| Brown Creeper | <i>Certhia americana</i> | U | | |
| Golden-crowned Kinglet | <i>Regulus satrapa</i> | U | | X |
| Ruby-crowned Kinglet | <i>Regulus calendula</i> | C | | |
| Swainson's Thrush | <i>Catharus ustulatus</i> | C | | X |
| Hermit Thrush | <i>Catharus guttatus</i> | C | | |
| American Robin | <i>Turdus migratorius</i> | C | | |
| Varied Thrush | <i>Ixoreus naevius</i> | U | | X |
| Bohemian Waxwing | <i>Bombycilla garrulus</i> | C | | |
| American Pipit | <i>Anthus rubescens</i> | C | | X |
| Pine Grosbeak | <i>Pinicola enucleator</i> | C | | |
| Common Redpoll | <i>Acanthis flammea</i> | C | | X |
| Hoary Redpoll | <i>Acanthis hornemanni</i> | C | | |
| White-winged Crossbill | <i>Loxia leucoptera</i> | C | | |
| Pine Siskin | <i>Spinus pinus</i> | U | | X |
| Lapland Longspur | <i>Calcarius lapponicus</i> | U | | |
| Fox Sparrow | <i>Passerella iliaca</i> | C | | X |
| American Tree Sparrow | <i>Spizelloides arborea</i> | C | | X |
| Dark-eyed Junco | <i>Junco hyemalis</i> | C | | |

Table 4. Continued.

| Species Group/Common Name ^b | Scientific Name | Abundance ^c | Conservation Status ^b | |
|--|----------------------------------|------------------------|----------------------------------|--------------|
| | | | USFWS BCC | ADFG At-risk |
| White-crowned Sparrow | <i>Zonotrichia leucophrys</i> | C | | X |
| Golden-crowned Sparrow | <i>Zonotrichia atricapilla</i> | U | | |
| Savannah Sparrow | <i>Passerculus sandwichensis</i> | C | | X |
| Lincoln's Sparrow | <i>Melospiza lincolnii</i> | C | | |
| Red-Winged Blackbird | <i>Agelaius phoeniceus</i> | U | | X |
| Rusty Blackbird | <i>Euphagus carolinus</i> | C | X | X |
| Northern Waterthrush | <i>Parkesia noveboracensis</i> | C | | |
| Orange-crowned Warbler | <i>Leiothlypis celata</i> | C | | |
| Yellow Warbler | <i>Setophaga petechia</i> | C | | X |
| Blackpoll Warbler | <i>Setophaga striata</i> | C | | X |
| Yellow-rumped Warbler | <i>Setophaga coronata</i> | C | | |
| Townsend's Warbler | <i>Setophaga townsendi</i> | C | | |
| Wilson's Warbler | <i>Cardellina pusilla</i> | C | | |
| MAMMALS | | | | |
| Red Squirrel | <i>Tamiasciurus hudsonicus</i> | C | | |
| Northern Flying Squirrel | <i>Glaucomys sabrinus</i> | C | | |
| Woodchuck | <i>Marmota monax</i> | U | | |
| Beaver | <i>Castor canadensis</i> | C | | |
| Meadow Jumping Mouse | <i>Zapus hudsonius</i> | U | | |
| Brown Lemming | <i>Lemmus trimucronatus</i> | U | | |
| Tundra Vole, Root Vole | <i>Microtus oeconomus</i> | C | | |
| Meadow Vole | <i>Microtus pennsylvanicus</i> | C | | |
| Taiga Vole, Yellow-cheeked Vole | <i>Microtus xanthognathus</i> | U | | |
| Northern Red-Backed Vole | <i>Myodes rutilus</i> | C | | |
| Muskrat | <i>Ondatra zibethicus</i> | C | | |
| Northern Bog Lemming | <i>Synaptomys borealis</i> | U | | |
| Porcupine | <i>Erethizon dorsatum</i> | C | | |
| Snowshoe Hare | <i>Lepus americanus</i> | C | | |
| Common Shrew, Cinereus | <i>Sorex cinereus</i> | C | | |
| American Pygmy Shrew | <i>Sorex hoyi</i> | U | | |
| Dusky Shrew | <i>Sorex monticola</i> | C | | |
| Western Water Shrew | <i>Sorex navigator</i> | U | | |
| Tundra Shrew | <i>Sorex tundrensis</i> | U | | |
| Holarctic Least Shrew | <i>Sorex minutissimus</i> | U | | |
| Little Brown Bat | <i>Myotis lucifugus</i> | C | | |
| Lynx | <i>Lynx canadensis</i> | C | | |
| Coyote | <i>Canis latrans</i> | C | | |
| Wolf | <i>Canis lupus</i> | U | | |
| Red Fox | <i>Vulpes vulpes</i> | C | | |
| Black Bear | <i>Ursus americanus</i> | C | | |
| Brown Bear | <i>Ursus arctos</i> | U | | |
| River Otter | <i>Lontra canadensis</i> | U | | |

Table 4. Continued.

| Species Group/Common Name ^b | Scientific Name | Abundance ^c | Conservation Status ^b | |
|--|-------------------------|------------------------|----------------------------------|--------------|
| | | | USFWS BCC | ADFG At-risk |
| Wolverine | <i>Gulo gulo</i> | U | | |
| Marten | <i>Martes americana</i> | C | | |
| Ermine, Short-Tailed Weasel | <i>Mustela erminea</i> | C | | |
| Least Weasel | <i>Mustela nivalis</i> | U | | |
| Mink | <i>Neovison vison</i> | U | | |
| Moose | <i>Alces americanus</i> | C | | |

^a Bird species list compiled using data from eBird (2020). Mammal species list compiled using MacDonald and Cook (2009) and UAMN (2020), and modified for the Tanana Lakes Recreation Area based on the habitats available .

^b Bird species of Conservation Concern (BCC) listed by USFWS (2008) and At-risk bird species listed by ADFG (2015).

^c C = common; U = uncommon in the Tanana Lakes Recreation Area; does not account for seasonality.

Many of the species listed in eBird occur outside the breeding season and would not have been present when we conducted surveys in June 2020.

A list of mammals expected to occur in the study area was compiled from MacDonald and Cook (2009) and the University of Alaska Museum of the North mammal checklist for Alaska (UAMN 2020). This list was then modified for the TLRA by ABR senior mammalogist, Brian Lawhead, based on his extensive field experience (over 30 years) studying mammals in Interior Alaska and specific knowledge of the habitats available in the TLRA study area. The list of mammals that are likely to occur in the study area includes 34 species composed of 13 species of small mammals (mice, voles, lemmings, and shrews), 2 squirrel species, 1 bat species, 15 furbearer species, and 3 species of large mammals (Table 4).

FIELD SURVEY RESULTS

Over the course of the two avian surveys conducted during the breeding season in early June 2020, 34 bird species were recorded in the TLRA study area; this included 3 waterbird, 2 gull, 4 shorebird, 2 raptor, and 23 landbird species (Table 5). Eighteen of these species were seen on both surveys. No mammals were observed in the study area during either avian survey.

Table 5. Number of birds recorded inside and outside the biological resources study area, and flyovers recorded during the breeding bird survey on 9 June 2020, Tanana Lakes Recreation Area, Fairbanks, Alaska. Species observed incidentally during the Bald Eagle survey on 2 June 2020 are denoted with an x.

| Species group/ Common name | Number of Birds | | | | | Flyover ^b | Bald Eagle Survey |
|-------------------------------|-----------------|-----|---|-----|---|----------------------|----------------------|
| | Road Corridor | | Remainder of Study Area ^a | | | | |
| | In | Out | In | Out | | | |
| Waterbirds | | | | | | | |
| Canada Goose | 0 | 1 | 0 | 0 | 1 | | x |
| Northern Shoveler | 0 | 0 | 0 | 0 | 8 | | |
| Mallard | 0 | 0 | 0 | 0 | 0 | | x |
| Seabirds | | | | | | | |
| Mew Gull | 1 | 0 | 4 | 0 | 2 | | x |
| Herring Gull | 0 | 0 | 0 | 0 | 0 | | x |
| Shorebirds | | | | | | | |
| Wilson's Snipe | 1 | 0 | 0 | 0 | 0 | | |
| Spotted Sandpiper | 2 | 0 | 0 | 0 | 0 | | |
| Solitary Sandpiper | 1 | 0 | 0 | 0 | 0 | | |
| Lesser Yellowlegs | 1 | 0 | 0 | 0 | 0 | | x |
| Raptors | | | | | | | |
| Osprey | 0 | 0 | 0 | 0 | 0 | | x |
| Northern Harrier | 0 | 0 | 0 | 0 | 0 | | x |
| Landbirds | | | | | | | |
| Hairy Woodpecker | 0 | 0 | 0 | 0 | 0 | | x |
| Northern Flicker | 1 | 0 | 0 | 0 | 0 | | x |
| Alder Flycatcher | 1 | 2 | 1 | 1 | 0 | | x |
| Black-billed Magpie | 0 | 0 | 0 | 0 | 0 | | x |
| Common Raven | 0 | 0 | 1 | 0 | 1 | | x |
| Tree Swallow | 1 | 0 | 0 | 0 | 0 | | x |
| Black-capped Chickadee | 0 | 0 | 1 | 0 | 0 | | |
| Boreal Chickadee | 1 | 0 | 0 | 0 | 0 | | |
| Swainson's Thrush | 8 | 3 | 0 | 0 | 0 | | x |
| Hermit Thrush | 1 | 0 | 0 | 0 | 0 | | |
| American Robin | 2 | 1 | 0 | 1 | 1 | | x |
| Common Redpoll | 0 | 0 | 0 | 0 | 3 | | x |
| White-winged Crossbill | 0 | 0 | 0 | 0 | 2 | | |
| Dark-eyed Junco | 0 | 1 | 1 | 1 | 0 | | x |
| White-crowned Sparrow | 6 | 3 | 0 | 1 | 0 | | x |
| Savannah Sparrow | 3 | 1 | 0 | 0 | 0 | | x |
| Lincoln's Sparrow | 3 | 4 | 0 | 1 | 0 | | x |
| Orange-crowned Warbler | 7 | 0 | 0 | 0 | 0 | | x |
| Yellow Warbler | 5 | 0 | 1 | 3 | 0 | | x |
| Blackpoll Warbler | 4 | 0 | 0 | 1 | 0 | | x |
| Yellow-rumped Warbler | 5 | 3 | 0 | 2 | 0 | | x |

Table 5. Continued.

| Species group/ Common name | Number of Birds | | | | | |
|--------------------------------|-----------------|-----|---|-----|----------------------|----------------------|
| | Road Corridor | | Remainder of Study Area ^a | | Flyover ^b | Bald Eagle Survey |
| | In | Out | In | Out | | |
| Townsend's Warbler | 0 | 0 | 0 | 0 | 0 | x |
| Wilson's Warbler | 0 | 0 | 0 | 0 | 0 | x |
| Total | 54 | 19 | 9 | 11 | 22 | 26 |
| % of all birds observed | 49 | 17 | 8 | 10 | 20 | — |

^a This includes birds observed in the swim beach area, the associated existing and proposed parking lots, and hiking trails.

^b Flyovers are birds that pass over the study area and are not using habitats in the study area.

Bald Eagle Survey

The Bald Eagle survey was conducted from 0930–1430 on 2 June 2020. Weather during the survey was fair and included scattered drizzle in the afternoon and moderate temperatures in the mid-60s °F, conditions that were suitable for the detection of bird species.

No Bald Eagles were seen in the survey area, and no eagle nest platforms were located. Few balsam poplar trees in the study area are large enough to support an eagle nest. The nearest known Bald Eagle nest, which was active in 2004, is located well outside (1.3 km to the southeast) from the nearest outer boundary of the survey area for Bald Eagles (Figure 3; ABR unpublished data). It is not known whether this nest is still actively being used. No other raptor nests were found during the survey, but an Osprey (*Pandion haliaetus*) was observed flying across Cushman Lake adjacent to the swim beach and may be one of a pair that regularly nests on the barber pole along the Golden Valley Electric Association (GVEA) Northern Intertie transmission line, which is located approximately 1.5 km from the study area boundary. In addition, a Northern Harrier (*Circus hudsonius*) was observed hunting in the field at the northwestern corner of the study area. Although no Bald Eagles were observed, 26 other bird species were recorded during the survey (Table 5).



Imagery Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community. Background image from WW03, acquired 21 June 2019 at 0.31m spatial resolution.



- Bald Eagle Nest (2004)
- Eagle Study Area
- Unserved Area (Eagles)
- GVEA Intertie

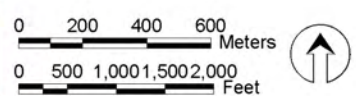


Figure 3.
Eagle Nests in the
Proposed Improvement Areas,
Tanana Lakes Recreation Area.

map prepared by:
ABR, Inc. — Environmental Research & Services

3 August 2020 Fig3_Tananalakes_EagleNest_20-239.mxd

Breeding Bird Census

The breeding bird census was conducted from 0400–1000 on 9 June 2020. Weather was in the low to mid-60s °F and mostly cloudy. There was no wind or precipitation during the survey, which provided ideal conditions for the detection of singing and calling birds.

Twenty-six bird species and 111 total birds were recorded during the one-day survey period, most of which were landbird species. Nearly 53% of all birds recorded ($n = 59$) were observed using habitats in the study area; 27% of all birds ($n = 30$) were located outside the study area and were typically identified at a distance by song; and another 20% ($n = 22$) were birds flying over the study area (Table 5).

One Boreal Chickadee (*Poecile hudsonicus*) was observed near the intersection of the proposed north-south road and the east-west swim beach access road with food and may have been feeding nestlings or fledglings. A pair of White-Crowned Sparrows (*Zonotrichia leucophrys*) was observed just north of the swim beach parking lot exhibiting aggressive behaviors consistent with nest defense. Both behavioral observations indicate that the survey date was appropriate to observe both resident and migrant breeding landbird species.

Forty-nine percent of all birds observed consisting of 19 species and 54 individual birds were recorded within the boundary of the proposed road corridor and buffer (Table 5). Species-habitat relationships in this portion of the study area were similar to those observed in a study of the Badger Watershed near Fairbanks (Martin et. al 1995), a site with comparable habitats also located near the Tanana River. Areas of low and tall alder and willow at the northern end of the road corridor and in patches throughout the study area, supported landbird species such as Yellow Warbler (*Setophaga petechia*), Orange-crowned Warbler (*Leiothypis celata*), and Alder Flycatcher (*Empidonax alnorum*). The northern end of the road corridor north of the levee is dominated by Moist Forb Meadow to the west and an unvegetated industrial site to the east, separated by a small dirt road. In these habitats, ground-nesting species such as Dark-eyed Junco (*Junco hyemalis*), Savannah Sparrow (*Passerculus sandwichensis*), and White-crowned Sparrow, and ground-foraging American Robins (*Turdus migratorius*) were observed. The Northern Harrier observed during the Bald Eagle survey was also hunting in this meadow. Several American Robins and Tree Swallows (*Tachycineta bicolor*) were observed on or near the road

and within the industrial area. The forest habitats in the middle of the road corridor and extending to the east supported three bird species groups that composed ~ 94% of all observations within forest types in the road corridor. Warblers, thrushes, and sparrows comprised 44%, 29%, and 21%, respectively, of all observations in forests along the road corridor. Forest-dwelling Swainson's Thrush (*Catharus ustulatus*) was the most abundant species recorded in the road corridor ($n = 8$), and the forest-edge species, Orange-crowned Warbler, was the second most abundant bird recorded ($n = 7$; Table 5).

Though small in size, the Fresh Sedge Marsh extending south from the end of a dirt trail in the road corridor, and east towards the swim beach parking lot (nearly bound by a gravel road; Figure 2), was rich with bird species that were not observed elsewhere in the study area. This wetland and adjacent forest was being used by three of the four shorebird species recorded in the full study area. These shorebirds included Wilson's Snipe (*Gallinago delicata*), Solitary Sandpiper (*Tringa solitaria*), and Lesser Yellowlegs (*Tringa flavipes*). Solitary Sandpiper is listed as species of conservation concern by the U.S. Fish and Wildlife Service (USFWS 2008) and an at-risk by the Alaska Department of Fish and Game (ADFG 2015), and Lesser Yellowlegs is considered an at-risk species (Table 4), in both cases because of documented declines in their populations (Handel and Sauer 2017). Two male Blackpoll Warblers (*Setophaga striata*), considered an at-risk species (ADFG; Table 4), were also observed singing in the area of the Fresh Sedge Marsh. In the barrens near the motorized boat launch at the Tanana River, the only species observed (besides flyover species) were two Spotted Sandpipers (*Actitis macularius*).

Only 8% of all bird observations and six species were made in those portions of the study area surrounding the swim beach, parking lot, and associated trails (Table 5). The remaining 47% of observations included species recorded outside the TLRA study area boundaries and flyovers (Table 5). The low number and diversity of birds in the area of the swim beach parking lot and associated trails is undoubtedly due to the general lack of vegetation in these areas. Dark-eyed Junco, Alder Flycatcher, Yellow Warbler, and Black-capped Chickadee (*Poecile atricapillus*) were recorded within a small forest stand with adjacent tall shrubs (near a small parking area southwest of the swim beach; Figure 2). Only a Common Raven (*Corvus corax*)

was observed in the parking lot and swim beach area, and several Mew Gulls (*Larus canus*) were observed in the swim beach area.

REGULATORY COMPLIANCE

As noted above, approximately 131 species of birds and 34 species of mammals are likely to occur in the TLRA on an annual basis (Table 4). Compliance with the Endangered Species Act (ESA; 16 USC. 1531) should be straightforward because no federally-protected threatened, endangered, or candidate species are likely to occur in the study area, and no critical habitat for federally-protected species exists within the study area. Because of this, no Section 7 consultation with the USFWS will be necessary. The TLRA is well outside the range of the four threatened species that occur in terrestrial habitats on the mainland of Alaska: Spectacled Eider (*Somateria fischeri*), Steller's Eider (*Polysticta stelleri*), polar bear (*Ursus maritimus*), and wood bison (*Bison bison athabascae*; ADFG 2020). The remaining threatened, endangered, and candidate species in Alaska either occur on the Aleutian Islands (i.e., the Aleutian shield fern [*Polystichum aleuticum*]), or are found exclusively in marine habitats (ADFG 2020).

Of the eight bird species that occur in the TLRA study area and are listed as species of conservation concern (USFWS 2008), seven are common, and one, Olive-sided Flycatcher (*Contopus cooperi*), is considered uncommon. In addition, 42 bird species are listed by the ADFG as at-risk species because of noted population declines or known threats during the breeding or non-breeding seasons. This includes 2 waterbird, 1 seabird, 11 shorebird, 6 raptor, and 22 landbird species (Table 4). Twenty-seven of these species are considered to be relatively common in abundance in the TLRA study area, if only seasonally (Table 4). No species of mammals likely to occur in the TLRA are listed by federal or state agencies.

The TLRA is within the range of Bald and Golden Eagles, both of which are protected by the BGEPA (50 CFR 22). Golden Eagles are very unlikely to occur in the study area due to the lack of suitable cliffs for nesting and open tundra habitats for foraging. While Golden Eagles are known to regularly nest in trees in other parts of their range (Kochert et al. 2020), there exist very few records of tree nests in Alaska (Ritchie and Curatolo 1982). The closest known Golden Eagle tree nests to the TLRA study area were found during raptor surveys in the Healy, Alaska area (Roseneau and Springer 1991), which is over 100 miles south of Fairbanks. All three nests

in that study were located in the upper reaches of white spruce trees that were 30–50 m tall. Bald Eagles are likely to occur in the study area due to the presence of known nest sites in the region along the Tanana River (Figure 3) and suitable foraging habitats; however, no nesting structures were found in the study area during the surveys in summer 2020. In the event that a Bald Eagle nest is found in or very close to the study area, timing of construction activity in the vicinity could be adjusted to avoid disturbing the nest during the eagle breeding season, which is defined by the USFWS as April–July in Interior Alaska (USFWS 2020). This will facilitate project compliance with the BEGPA.

Of of the 131 bird species recorded in the TLRA, all except Rock Pigeon *Columba livia*) are protected under the Migratory Bird Treaty Act (MBTA; 16 USC 703). Because songbird, shorebird, and waterfowl nests are difficult to locate (and thus avoid), compliance with the MBTA typically requires that vegetation clearing and construction activities be performed outside the breeding bird season for Interior Alaska, defined by the USFWS (2017) as 1 May–15 July for all forest, shrub, and open habitats. In practice, this is easily accomplished by conducting vegetation clearing and construction activities in early spring before the bird breeding season and/or in late summer and fall after young of the year have fledged.

LITERATURE CITED

- Alaska Center for Conservation Science (ACCS). 2019. Alaska Rare Vascular Plant Guide. Available at: <<https://accscatalog.uaa.alaska.edu/dataset/alaska-rare-vascular-plant-field-guide>>. Accessed 20 July 2020.
- Alaska Center for Conservation Science (ACCS). 2020a. AKEPIC data portal. Available at: <<https://aknhp.uaa.alaska.edu/apps/akepic/>>. Accessed 20 July 2020.
- Alaska Center for Conservation Science (ACCS). 2020b. Rare plant data portal. Available at: <<https://aknhp.uaa.alaska.edu/apps/rareplants/#>>. Accessed 20 July 2020.
- Alaska Department of Fish and Game (ADFG). 2015. Alaska wildlife action plan. Juneau, AK. 228 pp.

- Alaska Department of Fish & Game (ADFG). 2020. Federal special status species [website]. Available at: <<https://www.adfg.alaska.gov/index.cfm?adfg=specialstatus.fedendangered/>>. Accessed 20 July 2020
- Chesser, R. T., K. J. Burns, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., D. F. Stotz, and K. Winker. 2019. Check-list of North American Birds [website]. American Ornithological Society. Available at: <<http://checklist.aou.org/taxa>>. Accessed 5 August 2020.
- eBird. 2020. Hotspot map Tanana Lakes Recreation Area [website]. Available at: <<https://ebird.org/hotspot/L526888>>. Accessed 20 July 2020.
- Fairbanks Northstar Borough (FNSB) 2007. Tanana Lakes Recreation Area Master Plan. Prepared by the FNSB Department of Parks and Recreation and USKH Inc. Fairbanks, AK. 36 pp.
- Handel, C.M., J. R. Sauer. 2017. Combined analysis of roadside and off-road breeding bird survey data to assess population change in Alaska, *The Condor* 119: 557–575.
- Heidemann, M. 2010. Invasive Plant Management Recommendations for the Tanana Lakes Recreation Area. Prepared for the Fairbanks Northstar Borough, Fairbanks, AK, 36 pp.
- Kochert, M. N., K. Steenhof, C. L. McIntyre, and E. H. Craig. 2020. Golden Eagle (*Aquila chrysaetos*), version 1.0. In S. M. Billerman, ed. *Birds of the World*. Cornell Lab of Ornithology, Ithaca, NY. Available at: <<https://doi.org/10.2173/bow.goleag.01>>. Accessed 6 August, 2020.
- MacDonald, S. O., and J. A. Cook. 2009. *Recent mammals of Alaska*. University of Alaska Press, Fairbanks, AK. 387 pp.
- Martin, P.D., R.E. Spangler, and L.K. Bright. 1995. Bird use of habitats in the badger watershed near Fairbanks, AK. U.S. Fish and Wildlife Service, Technical report NAES-TR-95-1.
- Plant Materials Center. 2017. Interior Alaska Elodea eradication project: environmental assessment. Alaska Department of Natural Resources, Department of Agriculture. Palmer AK. 71 pp.

- Ritchie, R. J., and J. A. Curatolo. 1982. Notes on Golden Eagle productivity and nest site characteristics, Porcupine River, Alaska, 1979-1982. *Raptor Research* 16: 123–128.
- Roseneau, D. G., and A. M. Springer. 1991. Raptor surveys in the vicinity of the Healy Clean Coal Project near Healy, Alaska, May 30-31 and July 21-22, 1991. Unpublished report for Stone & Webster Engineering Corporation, Englewood, CO, by Biosystems Alaska, Fairbanks, AK. 50 pp.
- University of Alaska Museum of the North (UAMN). 2020. Mammals of Alaska [website]. Available at: <<https://www.uaf.edu/museum/collections/mammal/current-mammal-species-of/>>. Accessed 20 July 2020.
- U.S. Fish and Wildlife Service (USFWS). 2008. Birds of conservation concern 2008. U.S. Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Movements, Arlington, VA. 85 pp.
- USFWS. 2017. Timing recommendations for land disturbance and vegetation clearing: planning ahead to protect nesting birds. Prepared by U.S. Fish and Wildlife Service, Region 7. Anchorage, AK. 2 pp.
- USFWS. 2020. Bald Eagle nesting & sensitivity to human activity [website]. Available at: <<https://www.fws.gov/alaska/pages/migratory-birds/eagles-other-raptors/bald-eagle-nesting-sensitivity-human-activity>>. Accessed 24 July 2020.
- Viereck, L.A., Dyrness, C.T., Batten, A.R., Wenzlick, K.J. 1992. The Alaska vegetation classification. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Gen. Tech. Rep. PNW-GTR-286.

**BIOLOGICAL RESOURCES IMPACTS REPORT FOR THE
TANANA RIVER RECREATION ACCESS IMPROVEMENTS PROJECT:
AK FNSB TANANA(1)**

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INTRODUCTION

The Tanana River Recreation Access Improvements Project is managed by the Federal Highway Administration (FHWA), Western Federal Lands Highway Division (WFLHD). The project is intended to construct a new access road, and improve and expand the hiking trails and user facilities at the Tanana Lakes Recreation Area (TLRA) in Fairbanks, Alaska, which is managed by Fairbanks North Star Borough (FNSB). PND Engineers Inc. (PND) is the engineering and environmental contractor to WFLHD and ABR, Inc.—Environmental Research & Services (ABR) was subcontracted to provide environmental support for the project. This impacts report is based on data in the draft biological resources survey report for the project (ABR 2020) and the proposed improvement plans for the project area, which lies primarily within the TLRA (see Study Area below). This report summarizes the impacts to botanical and wildlife resources that are likely to occur from construction and use of the proposed improvements. Following the specifications in the FHWA Statement of Work for the project, this report summarizes the likely impacts on botanical and wildlife resources and provides impact and assessment suggestions that may be used in subsequent consultation, permitting, and NEPA documents. The formal assessment of impacts will be conducted separately in the Environmental Assessment for the proposed project.

STUDY AREA

The TLRA is located on the south (river) side of the Tanana Flood Control levee in south Fairbanks. The portion of the study area north of the levee is outside of the TLRA boundary. The recreation area has been established around Cushman Lake, which was formed by the impounded waters of an active slough of the Tanana River (Figure 1). The Goose Island Causeway (a groin extension of South Cushman Street) and Groin 8 (an extension of Cinch Street) were constructed to create the freshwater Cushman Lake, which is suitable for recreation activities and habitat conservation. Groin 8 also protects the motorized boat launch area at the Tanana River. Following the master plan for the area (FNSB 2007), the TLRA was developed after 2012 to include a swimming beach on Cushman Lake, hiking trails, the motorized boat launch on the Tanana River, and the non-motorized boat launch on the shore of Cushman Lake.

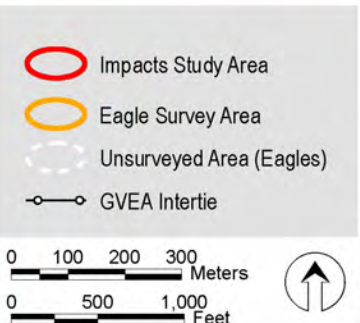
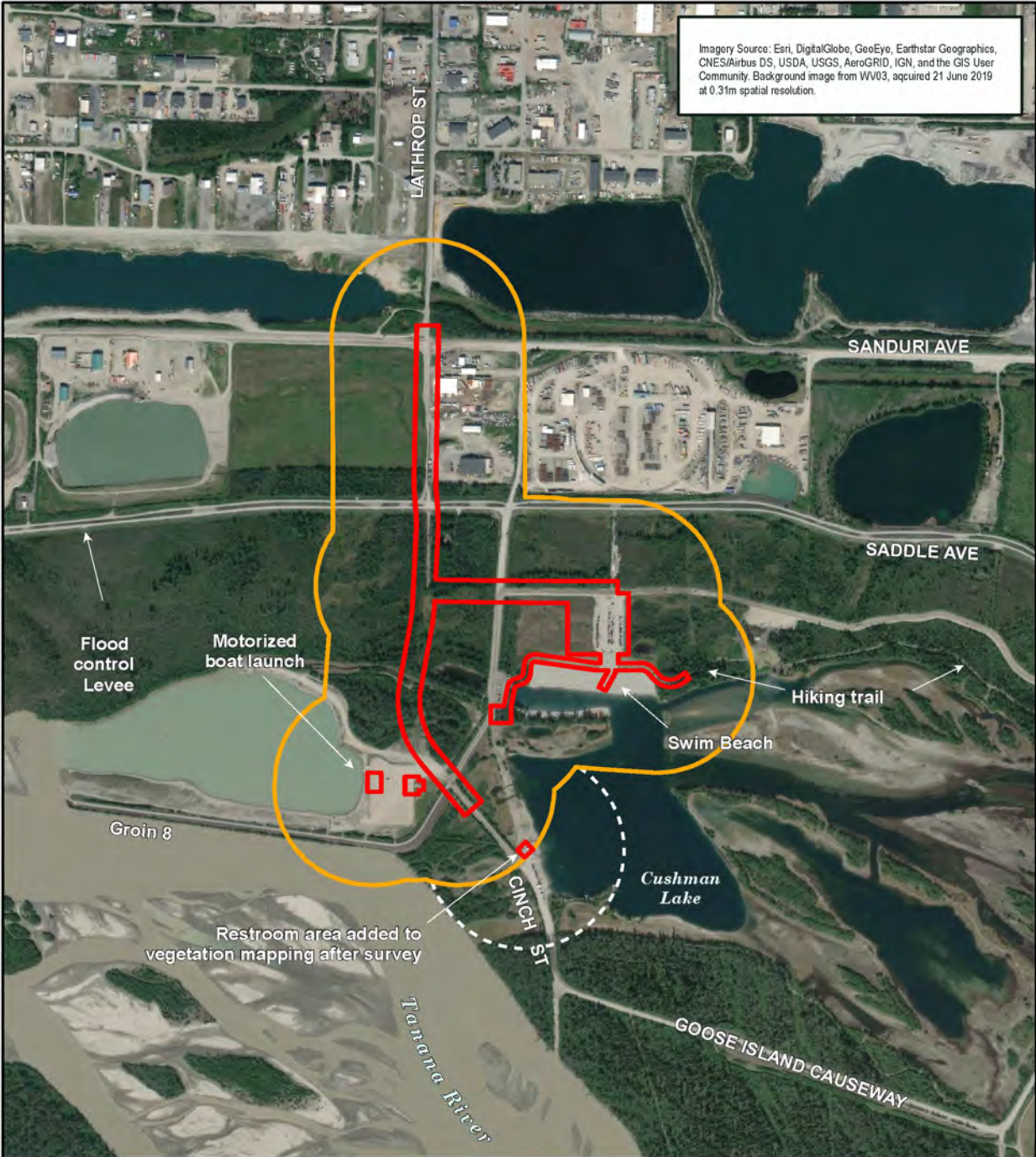


Figure 1.
Study Area Boundaries
for the Vegetation and Avian
Surveys, Tanana River Recreation
Access Improvements Project.

map prepared by:
 ABR, Inc. — Environmental Research & Services

21 August 2020 Fig1_Tananalakes_Impacts_SA_20-239.mxd

The biological resources study area for the project was defined in the FHWA Statement of Work as specific buffer zones surrounding areas of proposed infrastructure improvements. This included a buffer of 75 feet of either side of the proposed road centerlines, a buffer of 25 feet on either side of the proposed trail centerlines, a buffer of 25 feet around the proposed parking areas, and a buffer of 50 feet around the proposed restroom locations (Figure 1). In total, the biological resources study area encompasses approximately 23 acres. However, because the project footprint was finalized after the biological resources field survey and mapping work was completed, small portions of the footprint (0.6 acres total, see Results and Discussion below) were not included in the study area. The study area includes a proposed extension of South Lathrop Street to access the motorized boat launch on the Tanana River, a spur road from South Lathrop Street to the east to access the existing swim beach, and proposed improvements to the motorized boat launch facilities, the non-motorized boat launch facilities on the southwest side of Cushman Lake, and the facilities at the swim beach on the north side of Cushman Lake. With the exception of a short section of South Lathrop Street north of the Tanana Flood Control levee, the majority of the study area is on the Tanana River side of the levee, on both the east and west sides of Groin 8. Additional details on the study area can be found in ABR (2020).

METHODS

BOTANICAL RESOURCES

VEGETATION AND LAND COVER

Impacts to vegetation in the study area were evaluated in ArcGIS by overlaying the expected cut and fill boundaries (the footprint) of the proposed project improvements on the mapped vegetation and land cover types in the area. The cut and fill boundaries were provided by PND and the vegetation and land cover mapping was prepared by ABR. The two layers were intersected, using an ArcGIS analytical operation, to calculate the total acreage of each vegetation and land cover type that would be lost to cut and fill during construction. The acreage of each vegetation and land cover type within the vegetation and land cover mapping area, but outside the project footprint, was calculated to assess the additional acreage that could be altered during construction, operation, and maintenance of the proposed infrastructure.

NON-NATIVE AND RARE PLANTS

The potential for the spread of non-native vascular plants in the study area was discussed based on the current, known occurrences of non-native and especially invasive plant species in the study area. The potential for impacts on rare vascular plant taxa was discussed using documented records for rare plant taxa in a broad region surrounding the study area and specific survey results in the study area (ABR 2020).

WILDLIFE RESOURCES

BIRDS AND MAMMALS

Lists of the bird species known to occur and the mammal species likely to occur in the study area were prepared by ABR biologists prior to the field surveys. Field surveys for eagle nests and breeding birds were conducted in the study area in June 2020 . These data in association with the proposed project improvement plans were used to discuss the potential impacts to birds and mammals that could be expected from development of the proposed project.

RESULTS AND DISCUSSION

BOTANICAL RESOURCES

IMPACTS TO VEGETATION AND LAND COVER

Impacts on vegetation and land cover in the study area as a result of the proposed project improvements will generally fall into several broad categories including (1) direct loss of vegetation and land cover classes from cut and fill work during construction; (2) direct alteration of vegetation and land cover classes in areas adjacent to the new infrastructure from construction activities; and (3) indirect alteration of vegetation and land cover classes adjacent to the new infrastructure from operation and maintenance activities.

Direct loss of vegetation and land cover will occur in the study area as a result of cut and fill construction within the project footprint for the new proposed access road to the swim beach and the motorized boat launch, the construction of new trails and parking lots, and upgrades to the swim beach berm. In total, 12.6 acres of vegetation and land cover within the project footprint will be lost, which includes 15 vegetation and land cover types (Table 1). The Barren type

Table 1. Acres of vegetation and land cover types within the project footprint and mapping area for planned improvements, Tanana River Recreation Access Improvements Project, Fairbanks, Alaska.

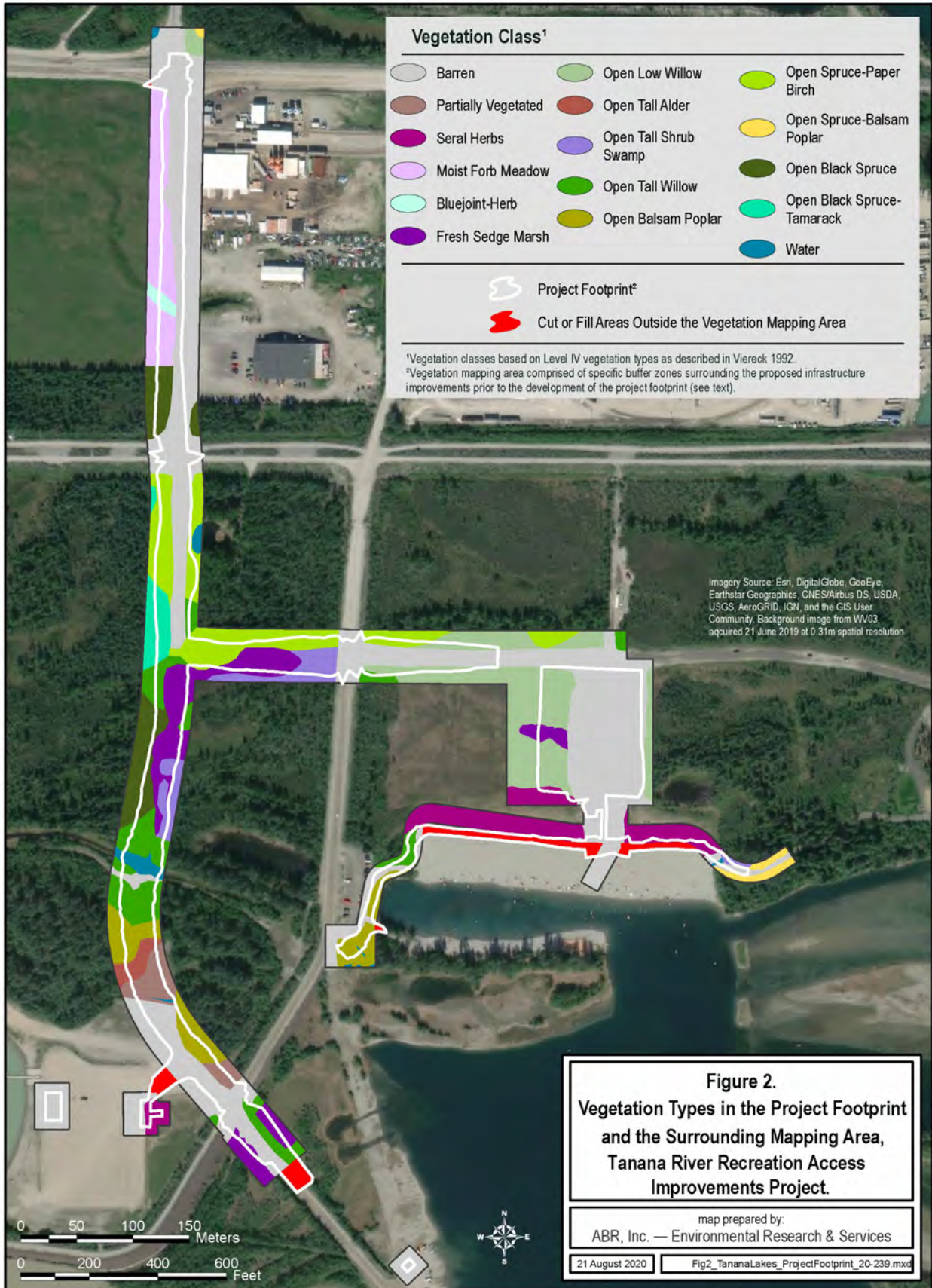
| Vegetation/Land Cover Type | Footprint Acres | % of Footprint | Additional Acres Altered ^a |
|----------------------------|-----------------|----------------|---------------------------------------|
| Barren | 5.65 | 44.76 | 3.84 |
| Partially Vegetated | 0.27 | 2.16 | 0.18 |
| Open Balsam Poplar | 0.46 | 3.64 | 0.48 |
| Open Spruce-Paper Birch | 0.97 | 7.72 | 0.85 |
| Open Spruce-Balsam Poplar | 0.00 | 0.00 | 0.16 |
| Open Black Spruce | 0.41 | 3.24 | 0.52 |
| Open Black Spruce-Tamarack | 0.21 | 1.66 | 0.19 |
| Seral Herbs | 0.14 | 1.10 | 1.11 |
| Moist Forb Meadow | 0.56 | 4.47 | 0.57 |
| Bluejoint-Herb | 0.06 | 0.45 | 0.03 |
| Fresh Sedge Marsh | 0.96 | 7.57 | 0.47 |
| Open Low Willow | 0.84 | 6.62 | 1.63 |
| Open Tall Alder | 0.13 | 1.06 | 0.06 |
| Open Tall Shrub Swamp | 0.40 | 3.18 | 0.36 |
| Open Tall Willow | 0.81 | 6.41 | 0.53 |
| Water | 0.13 | 1.03 | 0.04 |
| (outside of mapped area) | 0.62 | 4.93 | 0.00 |
| Totals | 12.62 | 100.00 | 11.02 |

^a Acreage within the vegetation and land cover mapping area, but outside the project footprint (see Study Area section above), that could be altered during construction, operation, and maintenance of the new infrastructure.

(barren gravel fill) is the most common single land cover class, covering 5.7 acres or 44.8% of the footprint area. The Partially Vegetated vegetation type covers 0.3 acre or 2.2% of the footprint area and represents areas that were previously cleared and are now regenerating with seeded grasses and colonizing weed species,. A set of 12 undisturbed vegetation types including forest stands, dwarf tree woodlands, open marshes, meadows, and early successional herbaceous classes cover between <0.1 and 1.0 acre each (0.4–7.7% of the footprint area). These 12 types combined encompass 6.0 acres or 47.1% of the footprint area. These vegetated areas will be used to a much greater degree by wildlife than cleared and partially vegetated areas (see Wildlife Resources below). Open water represents 0.1 acre or 1.0% of the project footprint. The project footprint was finalized after the biological resources field survey and mapping work was completed, and some portions of the footprint occur outside the area mapped for vegetation and

land cover. These unmapped areas combined represent 0.6 acre or 4.9% of the project footprint (Figure 2). Inspection of the aerial photography indicates that the majority of these areas area would be classified as Barren.

Direct alteration of vegetation in the mapping area outside of and adjacent to the project footprint will occur due to disturbance from construction activities, and indirect alteration of vegetation in those areas is likely to occur from use of the new infrastructure. The use and staging of machinery outside of the project footprint during construction will damage the vegetation present. During operation and maintenance of the infrastructure, especially the new access road, fugitive dust deposition will occur and may contribute to the alteration of vegetation. In studies along the Dalton Highway in northern Alaska, fugitive dust accumulations were documented to impact vegetation up to 328 feet from the road edge (Walker and Everett 1987; Myers-Smith et al. 2006). Fugitive dust deposition in the study area likely will not be as extensive as along the Dalton Highway where truck traffic is more common, and can be minimized by keeping the speed limits low. Additional vegetation alteration may occur in areas outside of the project footprint from impounded drainages, drifted snow that can alter hydrologic patterns, and from snow plowing and snow dumping activities that can delay plant phenology during spring and contribute additional road gravel, fines, and contaminants to adjacent vegetation. A total of 11.0 acres, including the same 15 vegetation and land cover types present in the project footprint, occur in the mapping area outside the project footprint (Table 1, Figure 2). The vegetation types in this area are likely to be altered from operation and maintenance activities associated with the new infrastructure. As in the project footprint, the Barren type is the most common single land cover class in these areas, covering 3.8 acres or 34.8% of the area. The Partially Vegetated class covers 0.2 acres or 1.6% of the area. Combined, the 12 undisturbed natural vegetated types cover 7.0 acres or 63.2% of the mapped area outside the project footprint. Open water covers <0.1 acre or 0.4% of the area. One forest type, Open Spruce-Balsam Poplar, covering 0.2 acres or 1.5% of the mapped area outside the project footprint, does not occur in the project footprint.



POTENTIAL FOR SPREAD OF NON-NATIVE PLANT SPECIES

During the field survey in July 2020, ABR biologists recorded 13 non-native plant species in various locations throughout the study area. The majority were concentrated around the swim beach parking lot and berm and the fallow field along the western edge of South Lathrop Street. Four of the recorded species: white sweetclover (*Melilotus albus*), European bird cherry (*Prunus padus*), field sow-thistle (*Sonchus arvensis*), and bird vetch (*Vicia cracca*) have invasiveness ranking scores greater than 70, which indicates a weed with the potential to spread and affect communities of native plant species (ACCS 2020a). All four species have established populations in the study area and should be considered a risk for further spread into undisturbed areas (e.g., with the construction of the proposed new access road).

During the July 2020 survey, we did not record *Elodea* (Waterweed). *Elodea* (various species) is known to occur in both lotic and lentic waters in the Chena River basin (Plant Materials Center 2017) and, if not already present, should be of concern for spreading into waters within the TLRA. *Elodea* spreads primarily through the dispersal of vegetative propagules (roots and shoots) that can be present on recreational equipment such as boats, waders, boots, and fishing gear that have been used in infested waters.

IMPACTS TO RARE PLANT SPECIES

Only those species with state rarity listings of S1 (critically imperiled or endangered), S2 (imperiled), S1/S2, S3 (rare or uncommon) or S2/S3 (ACCS 2019) were evaluated for possible impacts. Species with state listings of S4 (apparently secure) or S3/S4 were not included. None of the rare and uncommon species tracked by ACCS are listed federally or by the State of Alaska as endangered, threatened, or candidate species.

There are no known occurrences of rare vascular plant taxa (those with listings of S3 or rarer) in the study area (ABR 2020). Similarly, although 28 taxa considered to be rare in Alaska by ACCS (2020b) have been recorded within a 100-km radius of the study area and suitable habitat also exists for these taxa in the study area, none have been found there. For these reasons, impacts to rare vascular plant taxa are not expected from the proposed improvements to the TLRA.

WILDLIFE RESOURCES

IMPACTS TO BIRDS



While we did not analyze impacts of the proposed improvements in the study area on bird use of the area, we can discuss the types of impacts that are likely to occur. Impacts will generally fall into several broad categories including (1) direct loss of habitat and habitat alteration from construction; (2) indirect loss of habitat from displacement of breeding and non-breeding birds; (3) changes in activity patterns and energetic impacts resulting from anthropogenic disturbance; (4) direct mortality from human activity including collisions with vehicles or structures and mortality from contaminants; and (5) indirect mortality from the attraction of predators to the area.

Habitat loss and alteration will occur in the study area as a result of the construction of the new proposed access road to the swim beach and the motorized boat launch. This will include direct habitat loss from cut and fill for the new road and habitat alteration from vegetation damage and fugitive dust in areas adjacent to the road due to construction impacts and use of the new road. Portions of the new access road will be built in relatively undisturbed forest, wetland, and meadow habitats in which the greatest number of breeding bird species (19 of 26 species observed in the study area) were recorded during the field surveys in June 2020. As noted below in the Regulatory Compliance section, the take (disturbance and mortality) of breeding birds protected under the Migratory Bird Treaty Act (MBTA) can be avoided by conducting all vegetation clearing activities outside of the bird nesting season in Interior Alaska, which has been defined by the U.S. Fish and Wildlife Service (USFWS) as 1 May–15 July (USFWS 2017). Similarly, there should be no concerns for project compliance with the Bald and Golden Eagle Protection Act (BGEPA) because no Bald or Golden Eagle nests were found in June 2020 in the study area that included a 660-ft eagle survey buffer. The closest known eagle nest to the study area occurs roughly 1.3 km outside the 660-ft eagle survey buffer (Figure 3). This nest was active in 2004 (unpublished ABR data from the Golden Valley Electric Association Northern Intertie project [Shook et al. 2009]) and is currently of unknown status.



Imagery Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community. Background image from WW03, acquired 21 June 2019 at 0.31m spatial resolution.



-  Bald Eagle Nest (2004)
-  Eagle Survey Area
-  Unserved Area (Eagles)
-  GVEA Intertie

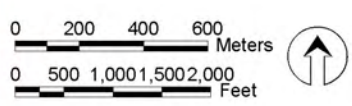


Figure 3.
Eagle Nests in the Vicinity of the Proposed Tanana River Recreation Access Improvements Project.

map prepared by:
 ABR, Inc. — Environmental Research & Services

21 August 2020 Fig3_Tananalakes_Impacts_EagleNest_20-239.mxd

After construction of the new access road, the group of 19 breeding bird species and 54 individual birds that are assumed to have portions of their breeding territories in the road corridor area (ABR 2020) are likely to be displaced. This includes 14 passerine species, 4 shorebird species, and 1 gull species (Table 2). Eight of the 14 passerine species are considered to be of conservation concern and are listed as at-risk species by the State of Alaska (ADFG 2015). This includes Alder Flycatcher (*Empidonax alnorum*), Tree Swallow (*Tachycineta bicolor*), Boreal Chickadee (*Poecile hudsonicus*), Swainson's Thrush (*Catharus ustulatus*), White-crowned Sparrow (*Zonotrichia leucophrys*), Savannah Sparrow (*Passerculus sandwichensis*), Yellow Warbler (*Setophaga petechia*), and Blackpoll Warbler (*Setophaga striata*; Table 2). Three of the four shorebird species—Spotted Sandpiper (*Actitis macularius*), Solitary Sandpiper (*Tringa solitaria*), and Lesser Yellowlegs (*T. flavipes*)—are considered to be at-risk species by ADFG (2015). Solitary Sandpiper is also listed as a species of conservation concern by the USFWS (2008).

After displacement from construction of the new access road, these birds may need to find alternative breeding habitat nearby. The likelihood that they will find suitable, alternative breeding habitat nearby in the floodplain of the Tanana River is unknown, but the numbers of birds involved (54) is relatively small. In contrast, the effects of displacement of migrant birds that currently use habitats in the road corridor will be of much less magnitude than for breeding birds because migrant birds are not philopatric to breeding territories and they can move, often in flocks, to a variety of nearby habitats in which to forage.

The effects of the proposed improvements on breeding birds in all portions of the study area outside of the new proposed road corridor will be of much less magnitude because the majority of these areas have been previously cleared and/or filled for the construction of existing infrastructure. Because of this, these areas were found to be used by many fewer breeding bird species (6) and only 9 individual birds (Table 2). Similarly, because of the general lack of vegetation and habitat diversity, these areas outside of the proposed road corridor will also be used by fewer numbers of migrant bird species.

Table 2. Breeding bird species recorded in the proposed access road corridor and in the remainder of the biological resources study area, Tanana River Recreation Access Improvements Project, Fairbanks, Alaska.

| Species Group/ Common Name | Scientific Name | No. in Road Corridor ^a | No. in Remainder of Study Area ^a | Conservation Status ^b | |
|-------------------------------|--------------------------------------|--------------------------------------|--|----------------------------------|-----------------|
| | | | | USFWS BCC | ADFG At-risk |
| Seabird | | | | | |
| Mew Gull | <i>Larus canus</i> | 1 | 4 | | |
| Shorebirds | | | | | |
| Wilson's Snipe | <i>Gallinago delicata</i> | 1 | 0 | | |
| Spotted Sandpiper | <i>Actitis macularius</i> | 2 | 0 | | X |
| Solitary Sandpiper | <i>Tringa solitaria</i> | 1 | 0 | X | X |
| Lesser Yellowlegs | <i>Tringa flavipes</i> | 1 | 0 | | X |
| Landbirds | | | | | |
| Northern Flicker | <i>Colaptes auratus</i> | 1 | 0 | | |
| Alder Flycatcher | <i>Empidonax alnorum</i> | 1 | 1 | | X |
| Common Raven | <i>Corvus corax</i> | 0 | 1 | | |
| Tree Swallow | <i>Tachycineta bicolor</i> | 1 | 0 | | X |
| Black-capped Chickadee | <i>Poecile atricapillus</i> | 0 | 1 | | |
| Boreal Chickadee | <i>Poecile hudsonicus</i> | 1 | 0 | | X |
| Swainson's Thrush | <i>Catharus ustulatus</i> | 8 | 0 | | X |
| Hermit Thrush | <i>Catharus guttatus</i> | 1 | 0 | | |
| American Robin | <i>Turdus migratorius</i> | 2 | 0 | | |
| Dark-eyed Junco | <i>Junco hyemalis</i> | 0 | 1 | | |
| White-crowned Sparrow | <i>Zonotrichia leucophrys</i> | 6 | 0 | | X |
| Savannah Sparrow | <i>Passerculus sandwichensis</i> | 3 | 0 | | X |
| Lincoln's Sparrow | <i>Melospiza lincolnii</i> | 3 | 0 | | |
| Orange-crowned Warbler | <i>Leiothlypis celata</i> | 7 | 0 | | |
| Yellow Warbler | <i>Setophaga petechia</i> | 5 | 1 | | X |
| Blackpoll Warbler | <i>Setophaga striata</i> | 4 | 0 | | X |
| Yellow-rumped Warbler | <i>Setophaga coronata</i> | 5 | 0 | | |
| Total | | 54 | 9 | | |

^a Birds recorded during the breeding bird census conducted on 9 June 2020 (ABR 2020).

^b Bird species of Conservation Concern (BCC) listed by USFWS (2008) and At-risk bird species listed by ADFG (2015).

Changes in bird activity patterns and energetic impacts from disturbance will be most pronounced in those vegetated areas adjacent to the new proposed access road, where construction disturbance and disturbance from vehicles using the new road will occur. Disturbance effects will include increased noise and altered light levels. These auditory and visual disturbances could disrupt bird activity patterns and energetics. New and larger parking lots could also increase vehicular disturbance to birds. Increased visitor traffic along the new access road and upgraded trails could further disturb breeding and foraging birds.

Direct mortality from collisions with vehicles and new infrastructure, and mortality from contaminants are potential concerns for all bird species. These impacts are likely to be uncommon but the magnitude (mortality) will be high. Choices in lighting in particular will determine how great an impact built structures in the study area will have on bird collisions. The USFWS and other organizations have issued standards and recommendations for reducing bird collision hazards with infrastructure, which can decrease the likelihood of avian collisions if implemented (USFWS 2016). Increases in vehicle collisions may result from increases in the number of personal vehicles in the TLRA. As more surfaces in the area such as parking lots, roads, and trails are hardened, the application of de-icing solutions might become more frequent. Snow dumps in parking lots may result in release of road salts into nearby waterways, affecting invertebrates, fish, and bird species. Additionally, landbirds are known to consume road salt directly and may die as a result (Mineau and Brownlee 2005).

The proposed improvements could indirectly result in higher bird mortality due to the increased presence of predators in the area. This could result in higher levels of predation of birds and their nests. Species such as Common Ravens, Bald Eagles, gulls, bears, foxes, and coyotes are well known to be predators on birds, especially bird nests and young broods. These impacts, however, may not be increased substantially above existing conditions in the study area because each of these predatory species is already expected to be common in the area (ABR 2020). In addition to natural predators, higher numbers of off-leash dogs from increased human use of the recreation area could result in higher levels of predation on birds.

IMPACTS TO MAMMALS

This section discusses the types of impacts to be expected on mammals in the study area as a result of the proposed project improvements. Impacts will generally fall into several broad categories including (1) direct loss of habitat and habitat alteration from construction; (2) indirect loss of habitat from displacement or disruption of movements; (3) changes in the abundance or availability of food or other important resources; (4) changes in activity patterns with associated energetic impacts caused by disturbance; and (5) direct mortality from human activity including hunting, vehicle collisions, or defense of life or property.

Up to 34 species of mammals are likely to occur in the study area during some portion of the year (ABR 2020). Of these, 19 species are expected to be common in the area (Table 3), and because of their abundance they are more likely than uncommon species to be affected by the proposed improvements. Impacts on mammals will vary according to the mammal species in question but the direct loss of habitat and habitat alteration from construction, and the indirect loss of habitat from displacement, especially in the new access road corridor area where native forest, wetland, and meadow habitats occur, will almost certainly be the most substantial impacts on all mammal species. From a regional perspective, given the relatively limited extent of the naturally vegetated areas to be affected (6.0 acres in the footprint and 7.0 acres potentially disturbed outside of the footprint; Table 1), the numbers of individual mammals to be affected may be low. This is especially likely for large mammals such as moose (*Alces americanus*) and black bears (*Ursus americanus*), and wide-ranging furbearers such as red fox (*Vulpes vulpes*) and coyote (*Canis latrans*) that have large home range sizes. For other mammal species with smaller home ranges and small mammals in particular (because they can occur at high densities in some years), the numbers of individual mammals to be affected will be greater.

Changes in the abundance or availability of food from vegetation clearing and disturbance is likely to affect mammals to a lesser degree than habitat loss as sufficient forage will almost certainly be available in nearby vegetated areas. For example, moose that preferentially forage on willow shrubs (*Salix* spp.) in open forests and forest edges, especially during the winter months, likely will be able to find sufficient willow stands elsewhere in riparian areas in the Tanana River floodplain.

Table 3. Mammal species expected to occur commonly in the biological resources study area, Tanana River Recreation Access Improvements Project, Fairbanks, Alaska.

| Common Name | Scientific Name |
|------------------------------|--------------------------------|
| Red Squirrel | <i>Tamiasciurus hudsonicus</i> |
| Northern Flying Squirrel | <i>Glaucomys sabrinus</i> |
| Beaver | <i>Castor canadensis</i> |
| Tundra Vole, Root Vole | <i>Microtus oeconomus</i> |
| Meadow Vole | <i>Microtus pennsylvanicus</i> |
| Northern Red-Backed Vole | <i>Myodes rutilus</i> |
| Muskrat | <i>Ondatra zibethicus</i> |
| Porcupine | <i>Erethizon dorsatum</i> |
| Snowshoe Hare | <i>Lepus americanus</i> |
| Common Shrew, Cinereus Shrew | <i>Sorex cinereus</i> |
| Dusky Shrew | <i>Sorex monticola</i> |
| Little Brown Bat | <i>Myotis lucifugus</i> |
| Lynx | <i>Lynx canadensis</i> |
| Coyote | <i>Canis latrans</i> |
| Red Fox | <i>Vulpes vulpes</i> |
| Black Bear | <i>Ursus americanus</i> |
| Marten | <i>Martes americana</i> |
| Ermine, Short-Tailed Weasel | <i>Mustela erminea</i> |
| Moose | <i>Alces americanus</i> |

Changes in activity patterns with associated energetic impacts induced by disturbance from human activities may represent a minor impact to mammals because in the study area mammals such as bears, for example, are not heavily dependent on a single food source such as spawning salmon, which often occur in distinct locations along streams. There is also evidence that in some cases brown bears may be able to maintain adequate food intake despite changes in their behavior because of human activities (Rode et al. 2006). Some mammals are also well known to alter their patterns of diurnal and nocturnal foraging behaviors to avoid interactions with humans during daylight hours.

The direct mortality of mammals from illegal hunting and defense of life or property actions is a concern only for large mammals and furbearers, whereas collisions with vehicles could occur for all mammal species. Collisions with vehicles are likely to be uncommon if road speed limits are set low, allowing mammals sufficient time to cross the new access road. Overall, these mortality impacts are likely to be uncommon but the magnitude (mortality) will be high.

REGULATORY COMPLIANCE

Approximately 131 species of birds and 34 species of mammals are likely to occur in the study area on an annual basis. Compliance with the Endangered Species Act (ESA; 16 USC 1531) will be straightforward for the project because no federally-protected threatened, endangered, or candidate species are likely to occur in the study area, and no critical habitat for federally-protected species exists within the study area. Because of this, no Section 7 consultation with the USFWS will be necessary. The study area is well outside the range of the four threatened species that occur in terrestrial habitats on the mainland of Alaska: Spectacled Eider (*Somateria fischeri*), Steller's Eider (*Polysticta stelleri*), polar bear (*Ursus maritimus*), and wood bison (*Bison bison athabascae*; ADFG 2020). The remaining threatened, endangered, and candidate species in Alaska either occur on the Aleutian Islands (i.e., the Aleutian shield fern [*Polystichum aleuticum*]), or are found exclusively in marine habitats (ADFG 2020).

The study area is within the range of Bald and Golden Eagles, both of which are protected by the BGEPA (50 CFR 22). Golden Eagles are very unlikely to occur in the study area due to the lack of suitable cliffs for nesting and open tundra habitats for foraging. The closest known Golden Eagle tree nests to the study area were found during raptor surveys in the Healy, Alaska area (Roseneau and Springer 1991), which is over 100 miles south of Fairbanks. Bald Eagles are likely to occur in the study area due to the presence of known nest sites in the region along the Tanana River (Figure 3) and suitable foraging habitats; however, no nesting structures were found in the study area during the surveys in summer 2020 (ABR 2020). In the event that a Bald Eagle nest is found in or very close to the study area, timing of construction activity in the vicinity could be adjusted to avoid disturbing the nest during the eagle breeding season, which is defined by the USFWS as April–July in Interior Alaska (USFWS 2020). This will facilitate project compliance with the BEGPA.

Of the 131 bird species recorded in the study area (ABR 2020), all except Rock Pigeon (*Columba livia*) are protected under the Migratory Bird Treaty Act (MBTA; 16 USC 703). Because songbird, shorebird, and waterfowl nests are difficult to locate (and thus avoid), compliance with the MBTA typically requires that vegetation clearing and construction activities be performed outside the breeding bird season for Interior Alaska, defined by the USFWS (2017)

as 1 May–15 July for all forest, shrub, and open habitats. In practice, this is easily accomplished by conducting vegetation clearing and construction activities in early spring before the bird breeding season and/or in late summer and fall after young of the year have fledged.

LITERATURE CITED

- ABR, Inc.—Environmental Research & Services (ABR). 2020. Biological Resources Survey Report for the Proposed Tanana River Recreation Access Improvements Project: AK FNSB TANANA(1). Final report prepared for PND, Engineers, Inc., Anchorage, AK, and Federal Highway Administration, Western Federal Lands Highway Division, Vancouver, WA. 30 pp.
- Alaska Center for Conservation Science (ACCS). 2019. Alaska Rare Vascular Plant Guide. Available at: <<https://accscatalog.uaa.alaska.edu/dataset/alaska-rare-vascular-plant-field-guide>>. Accessed 20 July 2020.
- Alaska Center for Conservation Science (ACCS). 2020a. AKEPIC data portal. Available at: <<https://aknhp.uaa.alaska.edu/apps/akepic/>>. Accessed 20 July 2020.
- Alaska Center for Conservation Science (ACCS). 2020b. Rare plant data portal. Available at: <<https://aknhp.uaa.alaska.edu/apps/rareplants/#>>. Accessed 20 July 2020.
- Alaska Department of Fish and Game (ADFG). 2015. Alaska wildlife action plan. Juneau, AK. 228 pp.
- Alaska Department of Fish & Game (ADFG). 2020. Federal special status species [website]. Available at: <<https://www.adfg.alaska.gov/index.cfm?adfg=specialstatus.fedendangered/>>. Accessed 20 July 2020
- Fairbanks Northstar Borough (FNSB) 2007. Tanana Lakes Recreation Area Master Plan. Prepared by the FNSB Department of Parks and Recreation and USKH Inc. Fairbanks, AK. 36 pp.
- Kochert, M. N., K. Steenhof, C. L. McIntyre, and E. H. Craig. 2020. Golden Eagle (*Aquila chrysaetos*), version 1.0. In S. M. Billerman, ed. Birds of the World. Cornell Lab of

- Ornithology, Ithaca, NY. Available at: <<https://doi.org/10.2173/bow.goleag.01>>. Accessed 6 August, 2020.
- Mineau, P., and L. J. Brownlee. 2005. Road salts and birds: an assessment of the risk with particular emphasis on winter finch mortality. *Wildlife Society Bulletin* 33: 835–841.
- Myers-Smith I. H., B. K., Arnesenm, R. M. Thompson, and F. S. Chapin III. 2006. Cumulative impacts on Alaskan arctic tundra of a quarter century of road dust. *Ecoscience* 13: 503–510.
- Plant Materials Center. 2017. Interior Alaska Elodea eradication project: environmental assessment. Alaska Department of Natural Resources, Department of Agriculture. Palmer AK. 71 pp.
- PND Engineers, Inc. (PND). 2019. Scoping Report: Tanana Lakes Recreation Area, Fairbanks North Star Borough, Alaska, AK FNSB TANANA(1), Tanana River Recreation Access Improvements. Prepared for Federal Highway Administration, Western Federal Lands Highway Division, Vancouver, WA. 59 pp.
- Ritchie, R. J., and J. A. Curatolo. 1982. Notes on Golden Eagle productivity and nest site characteristics, Porcupine River, Alaska, 1979-1982. *Raptor Research* 16: 123–128.
- Rode, K. D., S. D. Farley, and C. T. Robbins. 2006. Behavioral responses of brown bears mediate nutritional effects of experimentally introduced tourism. *Biological Conservation* 133: 70–80.
- Roseneau, D. G., and A. M. Springer. 1991. Raptor surveys in the vicinity of the Healy Clean Coal Project near Healy, Alaska, May 30-31 and July 21-22, 1991. Unpublished report for Stone & Webster Engineering Corporation, Englewood, CO, by Biosystems Alaska, Fairbanks, AK. 50 pp.
- Shook, J. E., R. H. Day, J. P. Parrett, A. K. Prichard, and R. J. Ritchie. 2009. Monitoring interactions of birds with the Northern Intertie powerline, Interior Alaska, 2004–2006. Report prepared for Golden Valley Electric Association, Inc., Fairbanks, AK, by ABR, Inc.—Environmental Research & Services, Fairbanks, AK. 83 pp.

- U.S. Fish and Wildlife Service (USFWS). 2008. Birds of conservation concern 2008. U.S. Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Movements, Arlington, VA. 85 pp.
- USFWS. 2016. Reducing bird collisions with buildings and building glass: best practices. Unpublished report by Division of Migratory Bird Management, Falls Church, VA. 17 pp.
- USFWS. 2017. Timing recommendations for land disturbance and vegetation clearing: planning ahead to protect nesting birds. Prepared by U.S. Fish and Wildlife Service, Region 7. Anchorage, AK. 2 pp.
- USFWS. 2020. Bald Eagle nesting & sensitivity to human activity [website]. Available at: <<https://www.fws.gov/alaska/pages/migratory-birds/eagles-other-raptors/bald-eagle-nesting-sensitivity-human-activity>>. Accessed 24 July 2020.
- Walker, D. A., and K. R. Everett. 1987. Road dust and its environmental impact on Alaskan taiga and tundra. *Arctic and Alpine Research* 19: 479–489.

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Fairbanks North Star County, Alaska



Local office

Fairbanks Fish And Wildlife Conservation Office

☎ (907) 456-0203

📅 (907) 456-0208

MAILING ADDRESS

101 12th Avenue

Room 110

Fairbanks, AK 99701-6237

PHYSICAL ADDRESS

101 12th Avenue, Room 110
Fairbanks, AK 99701-6237

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

THERE ARE NO ENDANGERED SPECIES EXPECTED TO OCCUR AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS

ELSEWHERE" INDICATES THAT
THE BIRD DOES NOT LIKELY
BREED IN YOUR PROJECT AREA.)

American Golden-plover *Pluvialis dominica*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 20 to Aug 15

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Feb 1 to Sep 30

Golden Eagle *Aquila chrysaetos*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1680>

Breeds Jan 1 to Aug 31

Hudsonian Godwit *Limosa haemastica*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 15 to Jul 31

Lesser Yellowlegs *Tringa flavipes*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9679>

Breeds May 1 to Aug 15

Olive-sided Flycatcher *Contopus cooperi*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3914>

Breeds May 20 to Aug 31

Rusty Blackbird *Euphagus carolinus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 10 to Jul 20

Semipalmated Sandpiper *Calidris pusilla*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

Whimbrel *Numenius phaeopus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9483>

Breeds May 10 to Aug 20

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

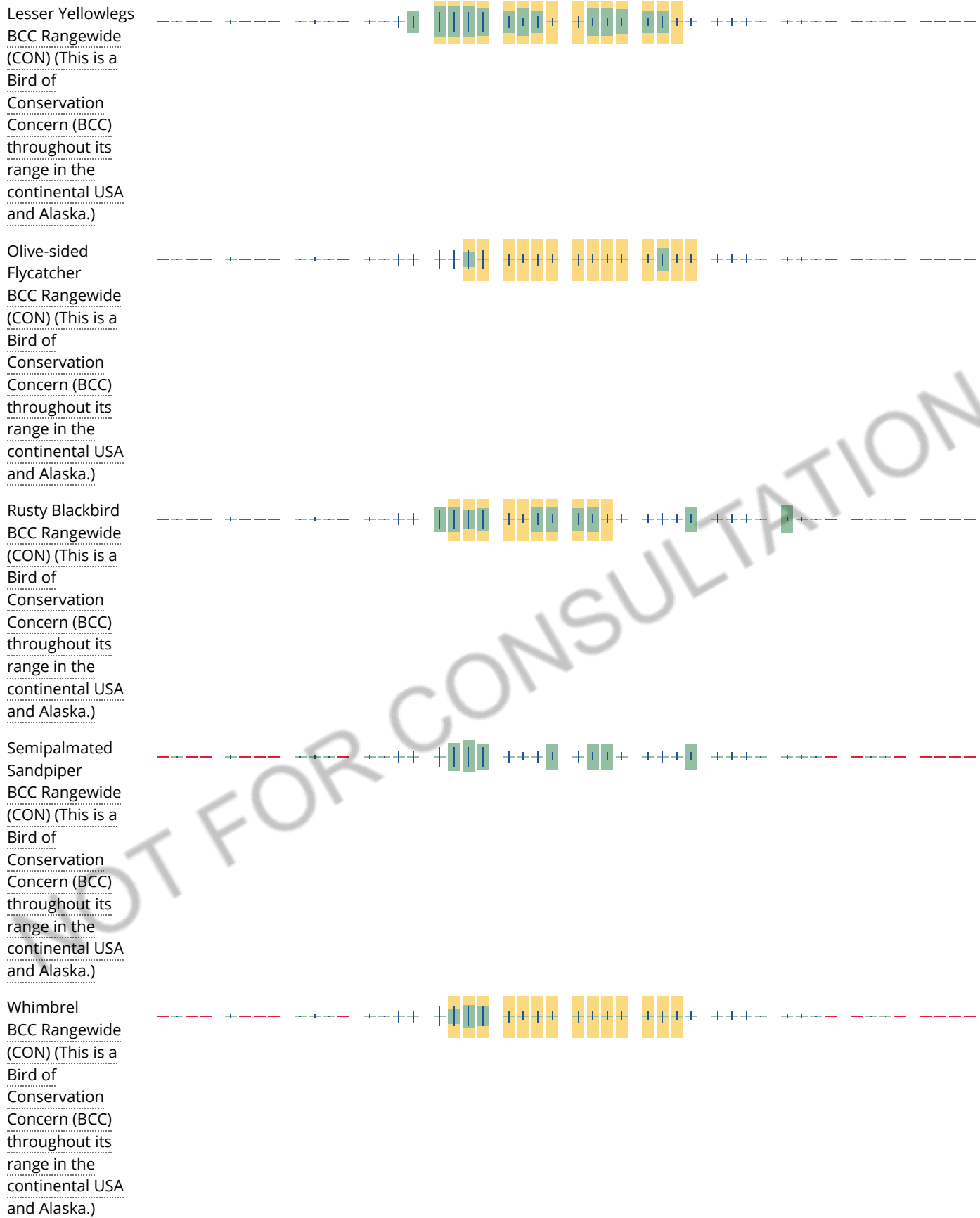
No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and

avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern \(BCC\)](#) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird

impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1B](#)

[PEM1Cx](#)

[PEM1C](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PSS1B](#)

[PSS1/3B](#)

[PSS1/USA](#)

[PSS/EM1B](#)

[PSS4/1B](#)

[PSS/EM1C](#)

FRESHWATER POND

[PUBHx](#)

[PUBH](#)

LAKE

[L1UBH](#)

[L1UBHx](#)

RIVERINE

[R2UBG](#)

[R5UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.