

**APPENDIX 2.4A
AGENCY CONSULTATION
CORRESPONDENCE**

**GGNS
EARLY SITE PERMIT APPLICATION
PART 3 – ENVIRONMENTAL REPORT**

September 15, 2002

Christina Adams
Enercon Services, Inc.
 8866 Gulf Freeway, Suite 380
 Huston, TX 77017-6531

**Re: Proposed Grand Gulf Nuclear Station Expansion
 Port Gibson, Mississippi**

Dear Ms. Adams:

In response to your request for information dated August 14, 2002, I have searched our database for occurrences of state or federally listed or proposed endangered or threatened plants and animals on the site referenced above.

There are several Federally Listed Species and Species of Special Concern in or within two mile of the construction site. Please refer to the following list and attached map for identification and location. It is critical that these species or their habitat not be harmed in construction efforts.

Scientific Name	Common Name	FED	STATE	SRANK
<i>PLETHODON WEBSTERI</i>	WEBSTER'S SALAMANDER			S3
<i>EUDOCIMUS ALBUS</i>	WHITE IBIS			S3B,SZN
<i>MYCTERIA AMERICANA</i>	WOOD STORK	LE	LE	SZN
<i>ICHTHYOMYZON CASTANEUS</i>	CHESTNUT LAMPREY			S3
<i>SCAPHIRHYNCHUS ALBUS</i>	PALLID STURGEON	LE	LE	S1
<i>POLYODON SPATHULA</i>	PADDLEFISH			S3
<i>CYCLEPTUS ELONGATUS</i>	BLUE SUCKER			S3
<i>ICTIOBUS NIGER</i>	BLACK BUFFALO			S3
<i>CRYSTALLARIA ASPRELLA</i>	CRYSTAL DARTER		LE	S1
<i>URSUS AMERICANUS LUTEOLUS</i>	LOUISIANA BLACK BEAR	LT	LE	S1
<i>PUMA CONCOLOR CORYI</i>	FLORIDA PANTHER	LE	LE	SH
<i>GRAPTEMYS PSEUDOGEOGRAPHICA KOHNI</i>	MISSISSIPPI MAP TURTLE			S4?

The Mississippi Natural Heritage Program (MNHP) has compiled a database that is the most complete source of information about Mississippi's rare, threatened, endangered or otherwise significant plants, animals, plant communities and natural features. The quantity and quality of data collected by MNHP are dependent on the research and observations of many individuals and organizations. In many cases, this information is not the result of comprehensive or site-specific field surveys; most natural

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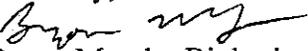
MISSISSIPPI
DEPARTMENT OF WILDLIFE, FISHERIES AND PARKS

SAM POLLES, Ph.D.
Executive Director

areas in Mississippi have not been thoroughly surveyed and new occurrences of plant and animal species are often discovered. Heritage reports summarize the existing information known to the MNHP at the time of the request and cannot always be considered a definitive statement on the presence, absence or condition of biological elements on a particular site.

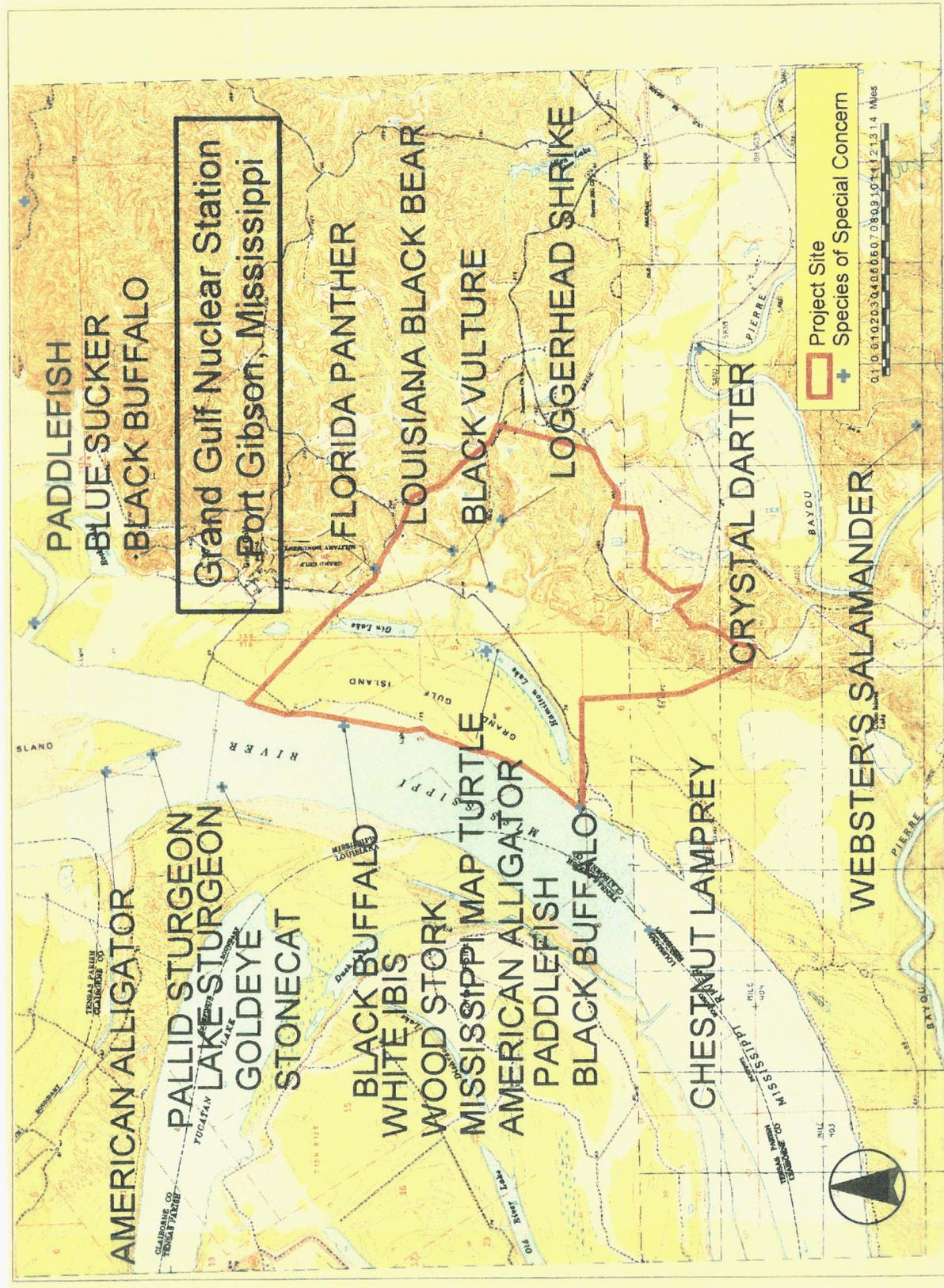
Please feel free to contact us if we can provide additional information.

Sincerely,


Bryon Moudy, Biological GIS Technician
Mississippi Natural Heritage Program

Mississippi Museum of Natural Science • 2148 Riverside Drive • Jackson, Mississippi 39202-1353 • (601) 354-7303

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**MISSISSIPPI NATURAL HERITAGE PROGRAM
SPECIAL ANIMALS LIST**

NATURAL HERITAGE PROGRAM
Mississippi Department of Wildlife, Fisheries, and Parks
Museum of Natural Science
2148 Riverside Drive
Jackson, Mississippi 39202-1353
(601) 354-7303

Edition of November, 2000

Approximately 1500 species of animals, including representatives of the groups gastropoda, bivalvia (mussels), malacostraca (amphipods, crawfish, shrimp, isopods), insects, cephalaspidomorphi (lamprey), osteichthyes (fishes), amphibians, reptiles, birds, and mammals, are tracked by the Mississippi Natural Heritage Program. Many of these are quite common. Some, however, are known or suspected to occur in low numbers; these are designated as species of special concern, and are listed on the following pages. There are 331 special concern animals, which include 25 gastropods, 50 bivalves, 38 crawfish and shrimp, 27 insects, 1 lamprey, 74 fish, 17 amphibians, 35 reptiles, 49 birds, and 15 mammals. An additional 31 species are designated "watch" status with the potential of becoming species of special concern.

This list is designed for the primary purposes of: 1) in environmental assessments, "flagging" of sensitive species that may be negatively affected by proposed actions; 2) determination of protection priorities of natural areas that contain such species; and 3) determination of priorities of inventory and protection for these plants, including the proposed listing of species for federal protection.

DEFINITION OF RANKS

HERITAGE RANKS: The Natural Heritage Program uses the Heritage ranking system developed by The Nature Conservancy. Each species is assigned two ranks; one representing its range wide or global status (GRANK), and one representing its status in the state (SRANK). A guide to ranking criteria and symbols follows:

- S1 Critically imperiled in Mississippi because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it vulnerable to extirpation.
- S2 Imperiled in Mississippi because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it vulnerable to extirpation.
- S3 Rare or uncommon in Mississippi (on the order of 21 to 100 occurrences).
- S4 Widespread, abundant, and apparently secure in the state, but with cause for long-term concern (more than 101 occurrences).
- S5 Demonstrably widespread, abundant, and secure in the state.
- SH Of historical occurrence in Mississippi, perhaps not verified in the past 20 years, and suspected to be extant. An element would also be ranked SH if the only known occurrence(s) were destroyed, or if it had been sought extensively and unsuccessfully looked for. Upon verification of an extant occurrence, SH-ranked elements would typically receive an S1 rank.
- SR Reported from the state, but without persuasive documentation which would provide a basis for either accepting or rejecting the report.
- SU Possibly in peril in Mississippi but status uncertain; need more information. May also be represented by S?.
- S? Unranked: Element is not yet ranked in the state.
- SX Element is believed to be extirpated from the state.
- SE Exotic: An exotic established in the state; may be native in nearby regions (e.g. pecans along the eastern seaboard of the U.S.)

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- SA Accidental: accidental or casual in the state (i.e., infrequent and far outside usual range).
- SZ Zero occurrences in the state. Not of practical conservation concern in the state, because there are no definable occurrences, although the taxon is native and appears regularly in the state.
- SP Potential: Element potentially occurs in the state but no occurrences reported.
- SR Reported: Element reported in the state but without persuasive demonstration which would provide a basis for either accepting or rejecting (e.g. misidentified specimen) the report.
- SRF Reported falsely: Element erroneously reported in the state and the error has persisted in the literature.
- HYB: Hybrid: Element represents hybrid of species.
- SSYN Synonym
- Breeding Status: (Applicable to migratory species, mainly birds, but also includes sea turtles, some fish, and some insects).
B = Breeding Status
N = Non-breeding Status
- Qualifiers:
? = Inexact
C = Captive or Cultivated only
- CRANK criteria follow those of SRANK except for species having several subspecies. In these cases, a subrank made up of the letter "T" plus a number or letter (1,2,3,4,5,H,U,X,?) is added to the CRANK.
- STATE STATUS: Animals on the state endangered species list are protected by state law.
- FEDERAL STATUS: From *Federal Register*.
- LE ENDANGERED. A species which is in danger of extinction throughout all or a significant portion of its range.
- LT THREATENED. A species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
- C CANDIDATE SPECIES. Species for which the U.S. Fish and Wildlife Service currently has substantial information supporting the biological appropriateness of proposing to list as endangered or threatened. Proposed rules have not yet been issued because they have been precluded at present by other listing activity. Development and publication of proposed rules is anticipated, however, and the U.S. Fish and Wildlife Service encourages Federal Agencies and other appropriate parties to give considerations to such taxa in environmental planning.
- C2 CANDIDATE CATEGORY 2. The Service identified Category 2 candidates as taxa for which information in the possession of the Service indicated that proposing to list as endangered or threatened was possibly appropriate, but for which sufficient data on biological vulnerability and threat were not currently available to support proposed rules. The quality of information varied greatly among the former Category 2 species, but they all shared one trait - sufficient information to justify issuance of a proposed rule was lacking. The designation of Category 2 species as candidates resulted in confusion about the conservation status of these taxa. To reduce that confusion, and to clarify that the Service does not regard these species as candidates for listing, the Service has discontinued the designation of Category 2 species as candidates. The Service remains concerned about these species, but further biological research and field study are needed to resolve the conservation status of these taxa. The Service encourages other Federal agencies to give consideration to these taxa in environmental planning.
- The designation of Category 3 is discontinued, but the Service has retained all Category 3 information in case future reviews are conducted on these taxa.
- 3A SUBCATEGORY 3A. Species for which the U.S. Fish and Wildlife Service has persuasive evidence of extinction. If rediscovered, however, such taxa warrant high priority for addition to the List of Endangered and Threatened Wildlife.

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- 3C SUBCATEGORY 3C. Species that are now considered to be more abundant and/or widespread than previously thought. Should new information suggest that such taxon is experiencing a numerical or distributional decline, or is under a substantial threat, it may be considered for transfer to category 1 or 2.

Cite the list as:

Mississippi Natural Heritage Program, 2000. Special Animals Tracking List. Museum of Natural Science, Mississippi Department of Wildlife, Fisheries & Parks, Jackson, Mississippi. 12 pp.

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, FL 33702
(727) 570-5312, FAX 570-5517
<http://caldera.sero.nmfs.gov>

OCT - 3 2002

F/SER3:SKB

Ms. Christina Adams
Environmental Scientist
Enercon Services, Inc.
8866 Gulf Freeway, Suite 380
Houston, TX 77017

Dear Ms. Adams:

We have reviewed your July 18, 2002, letter and maps regarding the Early Site Permit (ESP) application for potential expansion of the Grand Gulf Nuclear Station near Port Gibson, Mississippi. You requested preliminary guidance regarding potential project impacts to listed species under the purview of National Marine Fisheries Services (NOAA Fisheries) pursuant to section 7 the Endangered Species Act (ESA). NOAA Fisheries understands that the Nuclear Regulatory Commission (NRC) will later submit the final licensing application. We have assigned number I/SER/2002/01175 to this consultation; please refer to it in future correspondence on this action.

Based on the information you provided, NOAA Fisheries has determined:

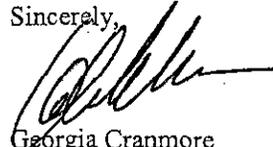
1. The threatened Gulf sturgeon (*Acipenser oxyrinchus desotoi*), jointly managed and listed (56 FR 49653, September 30, 1991) by NOAA Fisheries and the U.S. Fish and Wildlife Service, historically occurred from the Mississippi River to Tampa Bay. Gulf sturgeon have been occasionally documented in the Mississippi River since the mid-1930s; however, the river may not maintain a permanent population. Because the project area is within historic Gulf sturgeon range, we are concerned about potential impacts on the species. When available, we would be interested in details regarding the intake structure that will remove water from the Mississippi River and methods employed to avoid entrainment and impingement of Gulf sturgeon. We would also be interested in information regarding the discharge water temperature upon its return to the river.
2. The project location (nearby Port Gibson on the Mississippi River) is not within the proposed Gulf sturgeon critical habitat (67 CFR 39106, June 6, 2002). However, because the rule is not yet final, proposed areas and boundaries may be modified. Therefore, we recommend that Enercon Services, Inc. refer to the final critical habitat rule when preparing the license application.



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We look forward to continued cooperation with the Enercon Services, Inc. and NRC in conserving our endangered and threatened resources. If you have any questions, please contact Dr. Stephania Bolden, fishery biologist, by e-mail at stephania.bolden@noaa.gov or at 727/570-5312. Please remember that section 7 consultations are between Federal agencies and therefore the NRC must be involved: please clear any correspondence to NOAA Fisheries on this project through them, or at least copy them with your correspondence.

Sincerely,



Georgia Cranmore
Assistant Regional Administrator
for Protected Resources

cc: NRC
F/SER4

Ref: I/SER/2002/01175
o:\section7\informal\sturgeon\GrandGulfNuclear
File: 1514-22.M

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Mississippi Field Office
6578 Dogwood View Parkway, Suite A
Jackson, Mississippi 39213

August 20, 2002

Ms. Christina Adams
Enercon Services, Incorporated
8866 Gulf Freeway, Suite 380
Houston, Texas 77017

Dear Ms. Adams:

The U.S. Fish and Wildlife Service (Service) has reviewed the information in your letter dated August 14, 2002, regarding an Early Site Permit application for expansion of the Grand Gulf Nuclear Station near Port Gibson, Claiborne County, Mississippi. Your company is requesting information regarding federally listed species and their habitats that might occur in the vicinity of the proposed project area. Our comments are submitted in accordance with the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

The following listed species or their habitats could be found in the project area:

The threatened bald eagle (*Haliaeetus leucocephalus*) is the only species of "sea eagle" regularly occurring on the North American continent. The bald eagle is predominantly a winter migrant in the southeast; however, increasing occurrences of nesting have been observed. The bald eagle nests in the transitional area between forest and water. They construct their nests in dominant living pines or bald cypress trees. Eagles often use alternate nests in different years with nesting activity occurring between September and January of each year. Young are usually fledged by midsummer.

The endangered interior least tern (*Sterna antillarum*) migrates up the Mississippi River and lays its eggs directly on the sandbars associated with the river. Hundreds of these birds may nest together to form a colony.

Also, the endangered pallid sturgeon (*Scaphirhynchus albus*) is found in the lower Mississippi River, although it is rare throughout its range. These fish require large, turbid, free-flowing riverine habitats, and feed mainly on other fish. They are usually found near the bottom of streams or lakes in sand flats or gravel bars. Little information is known on spawning or migration habits of these fish, although spawning likely occurs in the spring and summer months.

The breeding/spawning season for terns and sturgeons is approximately April through July.

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The threatened Louisiana black bear is one of 16 subspecies of the American black bear. Although bear habitat consists mostly of bottomland hardwood forests, they are opportunistic omnivores and will frequent agricultural areas. Historical habitats have been reduced by 80% throughout its range. The remaining habitat has been reduced by forest fragmentation and human encroachment.

Historically, the Louisiana black bear occurred throughout southern Mississippi, all of Louisiana, and eastern Texas. Currently, there are only two known breeding bear subpopulations: the Tensas River basin and the Atchafalaya River basin. However, there have been reported sightings along the Mississippi River corridor in Mississippi and Louisiana.

All of the above listed species are very sensitive to human disturbance. Therefore, before the use or transportation of any heavy construction equipment, or the removal of any vegetation within potential habitats, the Service recommends a qualified biologist conduct a visual survey for these species. Areas surveyed should also include ingress and egress areas, equipment storage areas, and staging areas. If any of these species are identified, a survey by a qualified biologist must be completed before commencement of any work activities.

In addition, the threatened Bayou darter (*Etheostoma rubrum*) is found only in Bayou Pierre and its tributaries. The darter prefers stable gravel riffles or sandstone exposures with large sized gravel or rock. Habitat loss or degradation has been a major contributor to the reduction in bayou darter numbers. Mining has contributed to the destruction of riparian vegetation along Bayou Pierre and its tributaries, and has resulted in bank sloughing, bank collapse, and increased water turbidity.

Although we anticipate that the proposed activities would have no direct impacts on the Bayou darter, erosion control measures should be taken to prevent any runoff from entering Bayou Pierre or its tributaries.

If you have any additional questions, please feel free to contact this office, telephone: (601) 321-1132.

Sincerely,



Kathy W. Lunceford
Mississippi Environmental Coordinator

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State of Louisiana



James H. Jenkins, Jr.
Secretary

Department of Wildlife & Fisheries
Post Office Box 98000
Baton Rouge, LA 70898-9000
(225) 765-2800

M.J. "Mike" Foster, Jr.
Governor

Name Ms. Christina Adams
Company Enercon Services, Inc.
Street Address 8866 Gulf Freeway, Suite 380
City, State, Zip Houston, TX 77017
Project Grand Gulf Nuclear Station
Date October 2, 2002
Invoice Number 02100202

Personnel of the Habitat Section of the Fur and Refuge Division have reviewed the preliminary data for the captioned project. In reviewing our database, the following rare, threatened, or endangered species or critical habitats were found within the area of the captioned project that lies in Louisiana.

Bald Eagle (*Haliaeetus leucocephalus*)
Pallid Sturgeon (*Scaphirhynchus albus*)
Paddlefish (*Polyodon spathula*)
Interior Least Tern (*Sterna antillarum athalassos*)
Square-Stemmed Monkey-Flower (*Mimulus ringens*)
Waterbird Nesting Colony

Below are some recommendations from are department along with United States Endangered Species Act Status, Global and State Rarity Ranks, and locations of each species in the project area and the date of the last observation. The Last Observation is the date the element occurrence was last observed extant at the site; not necessarily the date the site was last visited. Please be aware that location information for element occurrences are given as point data and do not reflect local extent of the occurrence. We are unable to provide polygons identifying critical habitat around these points. In addition, the accuracy of the location information may be limited. Please refer to the precision data field which defines the precision to which the element occurrence as described can be located on a topographic map.

S= Seconds (Accuracy of locality mappable within a three-second radius)
M=Minute (within a one minute radius, approximately 2 km or 1.5 miles from centerpoint)
G=General (to quad or place name precision only, precision within about 8 km or 5 miles)

Bald Eagle (Federal Status Listed Threatened, State Status Listed Endangered, G4, S2N, S3B)

1. 320137N 0910901W, last observed 1999, Precision = S

Human activities, both short-term and long-term, and alteration of habitat may affect the reproductive success of nesting eagles. In the Southeast, the nesting period of most eagle pairs will fall between October 1 and May 15. Disturbance during this critical period may lead to nest abandonment and/or cracked or chilled eggs, and exposure of small young to the elements. Human activity (including aircraft

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operation) near a nest late in the nesting cycle may cause flightless birds to jump from the nest tree. We recommend that there be no activity within a 1,500-foot radius (457meters) from the nest tree at any time (nesting area). A buffer zone should be arranged to be contiguous to feeding area and provide protected access between nests and the food source; it should be approximately circular and with a minimum boundary of 1 mile (1,609 meters) from the nest tree. In general, no major activities should occur during the nesting period. Even intermittent use or activities of short duration are likely to provide such a disturbance (ex. Logging, seismographic activities w/explosives, mining, low level aircraft operations). Acceptable minor activities within this buffer zone include hiking, bird watching, camping, and recreational off-road vehicle use.

Additional recommendations for the Bald Eagle:

- Existing nests are often rebuilt and occupied after years of inactivity and, therefore, cannot be removed or destroyed even though they have been seemingly abandoned. Non-nest trees within the nesting area should also be protected until the nest tree is destroyed by the elements.
- Eliminate the use of toxic chemicals in the watersheds of lakes and rivers where eagles feed.
- Discourage the construction of buildings along shorelines where eagles feed.
- There must be no clear-cut and high-grade logging along the shoreline of feeding waters. This will prevent the removal of large trees preferred by eagles for hunting, roosting, and loafing perches.
- If possible, prevent or reduce shoreline erosion to protect roost or perch trees.
- Within the nesting area, no large tree should be removed. Within the buffer zone, a minimum of three to five large trees should be saved for potential roost and perch trees. Characteristically, these should be the largest trees in the timber stand which provide safety from any threat from the ground. Trees with open crowns and stout lateral limbs are preferable.

Pallid Sturgeon (Federal and State Status Listed Endangered, G1, S1)

1. 320215N 0910410W, last observed 1972-12-13, Precision = M

Requires large, turbid, free-flowing riverine habitat; occurs in strong current over firm or sandy substrate and spawns from July to August. Feeds opportunistically on aquatic insects, crustaceans, mollusks, eggs of other fish, and sometimes other fish. Threatened by habitat modification (construction of large dams, channelization), which has severely reduced or eliminated successful reproduction.

Paddlefish (G4, S3)

1. 320350N 0910945W, last observed 1988-05-06, Precision = G

Found in slow-flowing water of large and medium sized rivers, river-margin lakes, and oxbows. Prefers depths greater than 1.5 m. and spawns in shallow water over gravel during early spring in high water temperatures (11-14°C). Threatened by siltation of spawning habitats, pollution, back-to-back impoundments, and dams.

Interior Least Tern (Federal and State Status Listed Endangered, G4T2Q, S1B)

1. 315307N 0911337W, last observed 1996-07, Precision = M

2. 321455N 0905845W, last observed 1998-08-15, Precision = S

3. 320735N 0910247W, last observed 1997-07, Precision = M

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The range of the Interior Least Tern is Northeastern Louisiana where it nests on sandbars in the Mississippi River. Nesting colonies of this bird can move from year to year. Runoff, stream channelization, and reservoirs are the primary threat to the nesting habitat of this small tern. Precautions are recommended for any runoff or other water management practices that might effect the area in which these terns are nesting.

Water Bird Nesting Colony

1. 321052N 0911156W, last observed 1996-06-04, Precision = S

Square-stemmed Monkey Flower (G5, S3)

315615N 0911156W, last observed 1983-11-03, Precision = S.

The following state or federal parks, wildlife refuges, scenic streams, or wildlife management areas are known at the specified site within Louisiana's boundaries:

Lake Bruin State Park

Winter Quarters State Commemorative Area

This office does not comment on some of the information that you asked for. Below are some suggested sources for additional information:

1. For additional information about the species mentioned about try the NatureServe Explorer, an On Line Encyclopedia of Life found at www.natureserve.org
2. For additional information regarding freshwater fishes try Glen Thomas, Louisiana Department of Wildlife and Fisheries Inland Fish Division Program Manager of Research (225)-765-2343
3. For 2002 information regarding the Bald Eagle, contact Louisiana Department of Wildlife and Fisheries Biologist Tom Hess at 337-538-2276. The LNHP Bald Eagle data has not yet been updated for 2002.

The Louisiana Natural Heritage Program has compiled data on rare, endangered, or otherwise significant plant and animal species, plant communities, and other natural features throughout the state of Louisiana. Heritage reports summarize the existing information known at the time of the request regarding the location in question. The quantity and quality of data collected by the LNHP are dependent on the research and observations of many individuals. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Louisiana have not been surveyed. This report does not address the occurrence of wetlands at the site in question. Heritage reports should not be considered final statements on the biological elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. The Louisiana Natural Heritage Program requires that this office be acknowledged in all reports as the source of all data provided here. If you have any questions or need additional information, please call Louisiana Natural Heritage Program Data Manger Jill Kelly at (225) 765-2643.

Sincerely,


Gary Lester, NHP Coordinator

EXPLANATION OF RANKING CATEGORIES EMPLOYED BY NATURAL HERITAGE PROGRAMS NATIONWIDE

Each element is assigned a single global rank as well as a state rank for each state in which it occurs. Global ranking is done under the guidance of NatureServe, Arlington, VA. State ranks are assigned by each state's Natural Heritage Program, thus a rank for a particular element may vary considerably from state to state. Federal ranks are designated by the U.S. Fish & Wildlife Service under the provisions of the Endangered Species Act of 1973.

FEDERAL RANKS (USES FIELD):

- LE = Listed Endangered
 - LT = Listed Threatened
 - PE = Proposed endangered
 - PT = Proposed Threatened
 - C = Candidate
 - PDL = Proposed for delisting
 - B (S/A) or T (S/A) = Listed endangered or threatened because of similarity of appearance
 - XE = Essential experimental population
 - XN = Nonessential experimental population
 - No Rank = Usually indicates that the taxon does not have any federal status. However, because of potential lag time between publication in the Federal Register and entry in the central databases and state databases, some taxa may have a status which does not yet appear.
 - (Rank, Rank) = Combination values in parenthesis = The taxon itself is not named in the Federal Register as having U.S. ESA status; however, all of its infraspecific taxa (worldwide) do have official status. The statuses shown in parentheses indicate the statuses that apply to infraspecific taxa or populations within this taxon. *THE SPECIES IS CONSIDERED TO HAVE A COMBINATION STATUS IN LOUISIANA*
 - (PS) = partial status = Status in only a portion of the species' range. Typically indicated in a "full" species record where an infraspecific taxon or population has U.S. ESA status, but the entire species does not. *THE SPECIES DOES NOT HAVE A STATUS IN LOUISIANA*
 - (PS: Rank) = partial status = Status in only a portion of the species' range. The value of that status appears because the entity with status does not have an individual entry in NatureServe. *THE SPECIES MAY HAVE A STATUS IN LOUISIANA*
- GLOBAL ELEMENT RANKS:**
- G1 = critically imperiled globally because of extreme rarity (5 or fewer known extant populations) or because of some factor(s) making it especially vulnerable to extinction
 - G2 = imperiled globally because of rarity (6 to 20 known extant populations) or because of some factor(s) making it very vulnerable to extinction throughout its range
 - G3 = either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single physiographic region) or because of other factors making it vulnerable to extinction throughout its range (21 to 100 known extant populations)
 - G4 = apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery (100 to 1000 known extant populations)

- G5 = demonstrably secure globally, although it may be quite rare in parts of its range, especially at the periphery (1000+ known extant populations)
 - GH = of historical occurrence throughout its range; i.e., formerly part of the established biota, with the possibility that it may be rediscovered (e.g., Bachman's Warbler)
 - GU = possibly in peril range-wide, but status uncertain; need more information
 - G? = rank uncertain. Or a range (e.g., G3G5) delineates the limits of uncertainty
 - GQ = uncertain taxonomic status
 - GX = believed to be extinct throughout its range (e.g., Passenger Pigeon) with virtually no likelihood that it will be rediscovered
 - T = subspecies or variety rank (e.g., G5T4 applies to a subspecies with a global species rank of G5, but with a subspecies rank of G4)
- STATE ELEMENT RANKS:**
- S1 = critically imperiled in Louisiana because of extreme rarity (5 or fewer known extant populations) or because of some factor(s) making it especially vulnerable to extirpation
 - S2 = imperiled in Louisiana because of rarity (6 to 20 known extant populations) or because of some factor(s) making it very vulnerable to extirpation
 - S3 = rare and local throughout the state or found locally (even abundantly at some of its locations) in a restricted region of the state, or because of other factors making it vulnerable to extirpation (21 to 100 known extant populations)
 - S4 = apparently secure in Louisiana with many occurrences (100 to 1000 known extant populations)
 - S5 = demonstrably secure in Louisiana (1000+ known extant populations)
- (B or N may be used as qualifier of numeric ranks and indicating whether the occurrence is breeding or nonbreeding)
- SA = accidental in Louisiana, including species (usually birds or butterflies) recorded once or twice or only at great intervals hundreds or even thousands of miles outside their usual range
 - SH = of historical occurrence in Louisiana, but no recent records verified within the last 20 years; formerly part of the established biota, possibly still persisting
 - SR = reported from Louisiana, but without conclusive evidence to accept or reject the report
 - SU = possibly in peril in Louisiana, but status uncertain; need more information
 - SX = believed to be extirpated from Louisiana
 - SZ = transient species in which no specific consistent area of occurrence is identifiable