

EXHIBIT K

FNAI Managed Area Element Summary



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(850) 224-8207
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FLORIDA
Natural Areas
INVENTORY

Florida Natural Areas Inventory

Managed Area Element Summary

Welaka State Forest



SCIENTIFIC NAME	COMMON NAME	Global Rank	State Rank	Federal Status	State Listing
Plants and Lichens					
<i>Pteroglossaspis ecristata</i>	Giant Orchid	G2G3	S2	N	LT
Spiders					
<i>Sphodros abboti</i>	Blue Purse-web Spider	G4G5	S4	N	N
Grasshoppers and Allies					
<i>Melanoplus adelogyrus</i>	Volusia Grasshopper	G1G2	S1S2	N	N
Butterflies and Moths					
<i>Hesperia attalus slossonae</i>	Seminole Skipper	G3G4T3	S3	N	N
Amphibians					
<i>Rana capito</i>	Gopher Frog	G3	S3	N	LS
Reptiles					
<i>Gopherus polyphemus</i>	Gopher Tortoise	G3	S3	N	LT
Birds					
<i>Falco sparverius paulus</i>	Southeastern American Kestrel	G5T4	S3	N	LT
<i>Haliaeetus leucocephalus</i>	Bald Eagle	G5	S3	N	N
Mammals					
<i>Neofiber alleni</i>	Round-tailed Muskrat	G3	S3	N	N
<i>Sciurus niger shermani</i>	Sherman's Fox Squirrel	G5T3	S3	N	LS

Note: Summary includes all (and only) documented species occurrence records currently in the FNAI database.



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Using a ranking system developed by The Nature Conservancy and the Natural Heritage Program Network, the Florida Natural Areas Inventory assigns two ranks for each element. The global element rank is based on an element's worldwide status; the state element rank is based on the status of the element in Florida. Element ranks are based on many factors, the most important ones being estimated number of Element Occurrences (EOs), estimated abundance (number of individuals for species; area for natural communities), geographic range, estimated number of adequately protected EOs, relative threat of destruction, and ecological fragility.

FNAI GLOBAL ELEMENT RANK

- G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
- G2 = Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
- G3 = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
- G4 = Apparently secure globally (may be rare in parts of range).
- G5 = Demonstrably secure globally.
- G#? = Tentative rank (e.g., G2?)
- G#G# = Range of rank; insufficient data to assign specific global rank (e.g., G2G3)
- G#T# = Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1)
- G#Q = Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)
- G#T#Q = Same as above, but validity as subspecies or variety is questioned.
- GH = Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
- GNA = Ranking is not applicable because element is not a suitable target for conservation (e.g. as for hybrid species)
- GNR = Not yet ranked (temporary)
- GNRTNR = Neither the full species nor the taxonomic subgroup has yet been ranked (temporary)
- GX = Believed to be extinct throughout range
- GXC = Extirpated from the wild but still known from captivity/cultivation
- GU = Unrankable. Due to lack of information, no rank or range can be assigned (e.g., GUT2).

FNAI STATE ELEMENT RANK

Definition parallels global element rank: substitute "S" for "G", and "in Florida" for "globally" in above global rank definitions.

FEDERAL LEGAL STATUS (U. S. Fish and Wildlife Service- USFWS)

Provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant federal agency. Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3. Note that the federal status given by FNAI refers only to Florida populations and that federal status may differ elsewhere.

- LE = Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species which is in danger of extinction throughout all or a significant portion of its range.
- LE,XN = A non-essential experimental population of a species otherwise Listed as an Endangered Species.
- PE = Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.
- LT = Listed as Threatened Species. Defined as any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
- LT,PDL = Species currently listed Threatened but has been proposed for delisting.
- LT,PE = Species currently listed Threatened but has been proposed for a change to Endangered.

Note: Summary includes all (and only) documented species occurrence records currently in the FNAI database.



Florida Natural Areas Inventory

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Welaka State Forest



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- LE, PT = Species currently listed Endangered but has been proposed for a change to Threatened.
PT = Proposed for listing as Threatened Species.
C = Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants, Category 1. Federal agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.
SAT = Threatened due to similarity of appearance to a threatened species.
SC = Species of concern. Species is not currently listed but is of management concern to USFWS.
N = Not currently listed, nor currently being considered for addition to the List of Endangered and Threatened Wildlife and Plants.

STATE LEGAL STATUS

Provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant state agency.

ANIMALS: Definitions derived from "Florida's Endangered Species and Species of Special Concern, Official Lists" published by the Florida Fish and Wildlife Conservation Commission (FFWCC), 1 Aug 1997, and subsequent updates.

LE = Listed as Endangered Species by the FFWCC. Defined as a species, subspecies, or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factors that it is in immediate danger of extinction or extirpation from the state, or which may attain such a status within the immediate future

LT = Listed as Threatened Species by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future. LT* for *Ursus americanus floridanus* (Florida black bear) indicates that this status does not apply in Baker and Columbia counties and in the Apalachicola National Forest. LT* for *Neovison vison* pop.1 (Southern mink, South Florida population) indicates that this status applies to the Everglades population only.

LS = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species. LS* indicates that a species has LS status only in selected portions of its range in Florida. LS* for *Pandion haliaetus* (Osprey) indicates that this status applies in Monroe county only.

PE = Proposed for listing as Endangered.

PT = Proposed for listing as Threatened.

PS = Proposed for listing as Species of Special Concern.

N = Not currently listed, nor currently being considered for listing.

PLANTS (Florida Department of Agriculture and Consumer Services- FDACS) Definitions derived from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505 or see: <http://doacs.state.fl.us/pi/images/rule05b.pdf>

LE = Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.

PE = Proposed by the FDACS for listing as Endangered Plants.

LT = Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in such number as to cause them to be endangered. LT* indicates that a species has LT status only in selected portions of its range in Florida.

PT = Proposed by the FDACS for listing as Threatened Plants.

N = Not currently listed, nor currently being considered for listing.



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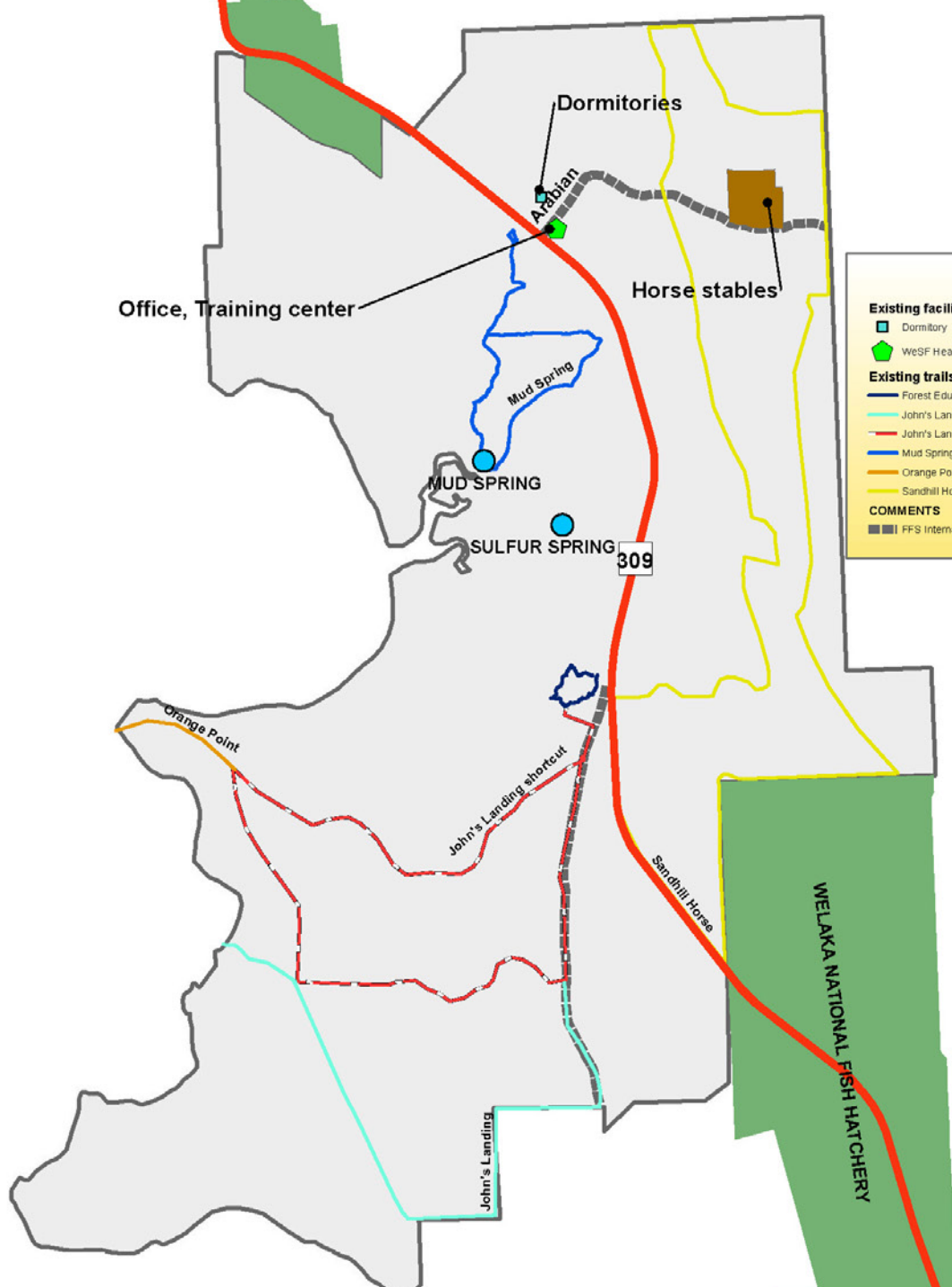


EXHIBIT L

Public Access and Recreation Map



Welaka State Forest Public Access and Recreation



Legend:

Existing facilities

- Dormitory
- WeSF Headquarters, Training center

Existing trails

- Forest Education
- John's Landing
- John's Landing shortcut
- Mud Spring
- Orange Point
- Sandhill Horse

COMMENTS

- FFS Internal SF roads (Primary)
- Forest Boundary



Disclaimer: This map is the product of the Florida Forest Service. There are no warranties made as to the fitness of this map for any unlisted purpose. Furthermore, no warranties are provided for data therein, its use or its interpretation.

Date: 12/5/2012

EXHIBIT M

WeSF 2009 Hydrological Restoration Summary

WELAKA STATE FOREST (Putnam County)

Initial State Acquisition: *March, 1994 (Lease)*

Area: *2,287 Acres*

Primary Watershed(s): *Middle St. Johns River*

Current Number of DEP FERI Database Listings: *0 Projects*

Previous Restoration Activities -

Little project restoration work has been done on Welaka State Forest (WeSF) by FFS in the past. In 2002 work was done at the site of **Mud Spring** to enhance wetland values and protect site integrity. Over the years since the FFS has managed the property, there have been direct and indirect benefits to hydrological systems as a result of routine road maintenance activities elsewhere on the Forest. However, to what extent these benefits have occurred, is uncertain.

Current/Planned/Proposed Restoration Activities -

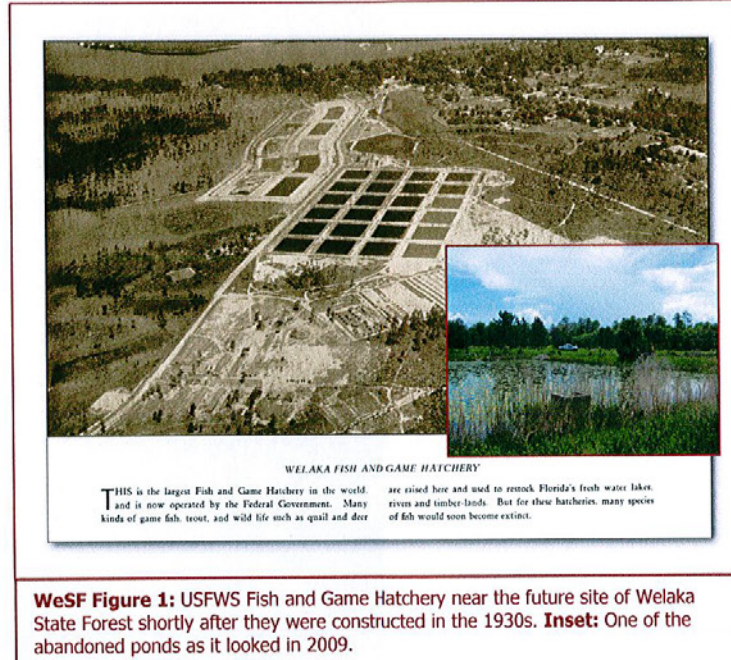
In 2005 a restoration project was proposed for the restoration and conversion of the former fish ponds of **US Fish & Wildlife Fish Hatchery** on County Road 309 (see **Figure 1**) under the Welaka State Forest management responsibility. The proposal objective was primarily recreational and environmental education in scope but it provides for wetland creation as well.

This project proposes to convert a number of shallow fish ponds that were constructed during the late 1930's into a single 10-acre lake to be used for recreational fishing facility for under-privileged and handicapped youth and education activities.

The FFS has worked with the SJRWMD and FFWCC since 2008 to secure project funding under the Aquatic Habitat Restoration and Enhancement Section Program (AHRES), administered by the FFWCC. However, as of this writing funding has not been obtained.

In the spring of 2009 the WeSF management team considered placing a culvert on Eagle's Nest Row to enhance drainage from the northern boundary to the Forest interior. However, after looking at the site further and considering the FNAI historic communities affected it was determined that a ditch plug would be needed instead to enhance natural sheetflow into a baygall to the south. As of this writing the plug has not been installed.

In another situation on the southern end of Eagle's Nest Row, the WeSF management team is currently discussing options for improving a stream crossing on the road west of the CR 309 Fire Tower site. The crossing is needed to allow equipment access south of the crossing and to protect water quality in the crossing.



Wetland Restoration Needs Assessment –

An assessment was conducted on WeSF during the summer of 2009. **One hundred forty points (140)** were established during the assessment; of which **10 sites** were identified as potential “high” priority wetland restoration sites (**see Table 3, page viii**).

The following observations made during the Welaka assessment are among the assessment findings.

1. In general the surface flow is toward the St. Johns River, west of the Forest. Forest roads, firelines, and County Road 309, which runs through the middle of the Forest north-to-south, are major impediments to the natural drainage.
2. The Forest is crossed with numerous lengthy firelines, some traversing wetlands, re-directing surface flow, and sometimes connecting wetlands.
3. Some road ditches such as those associated with Eagles Nest Row Road and others trap and divert wetland drainage from its natural flow pattern in many parts of the Forest (**see Figure 2**).
4. Removal of the raised fence line and its vegetation on both sides of CR 309 is an improvement aesthetically and will improve hydrology adjacent to the highway.



WeSF Figure 2: Some forest roads and associated road ditches interrupt and divert a significant amount of wetland surface flow from their natural drainage patterns on Welaka State Forest.

Additional information about the assessment is available upon request from the Hydrology Section of the Florida Forest Service (**see Appendix 1**).

EXHIBIT N

Non-Native Invasive Plant Map

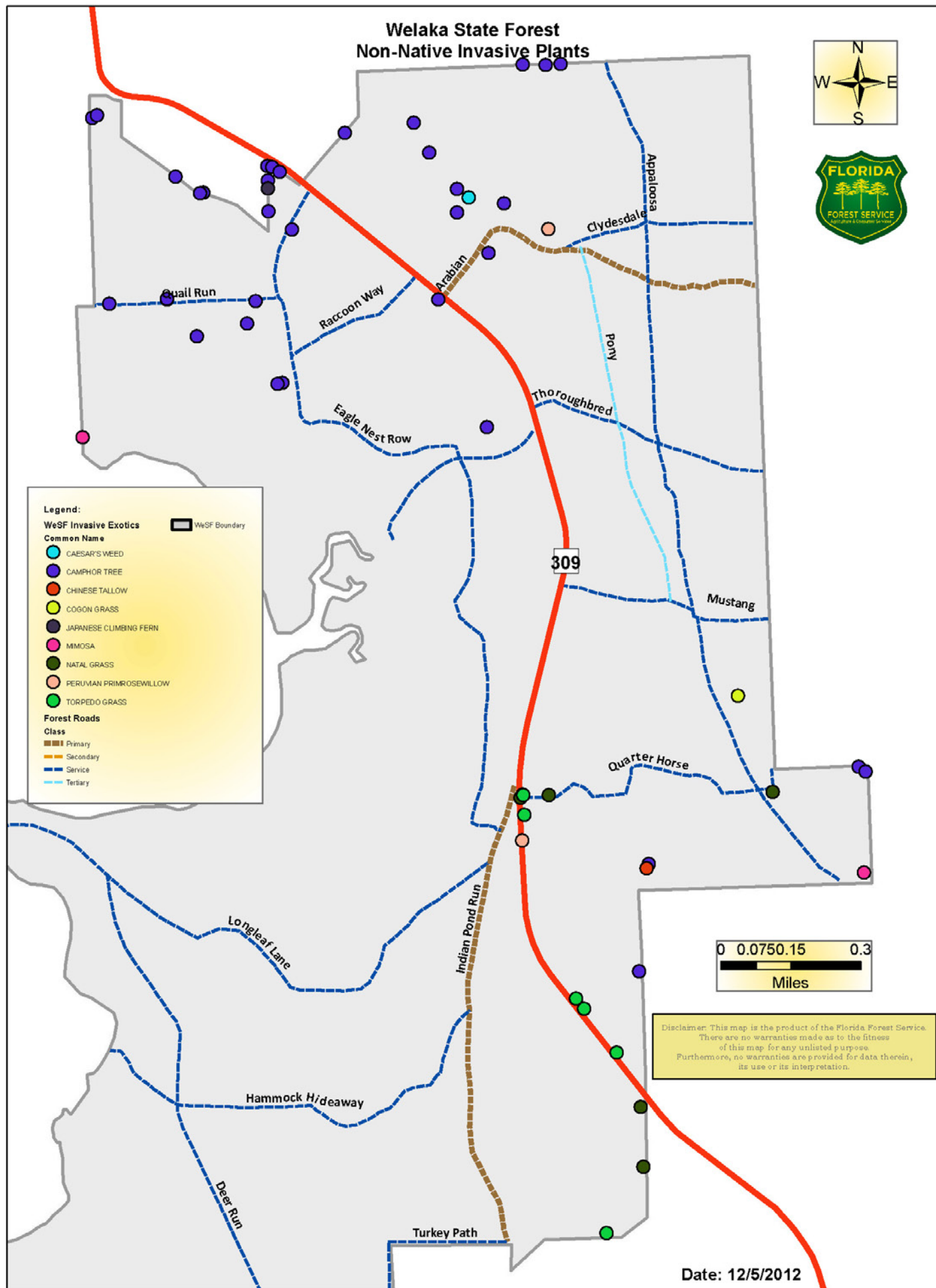


EXHIBIT O

Historical Natural Communities Map



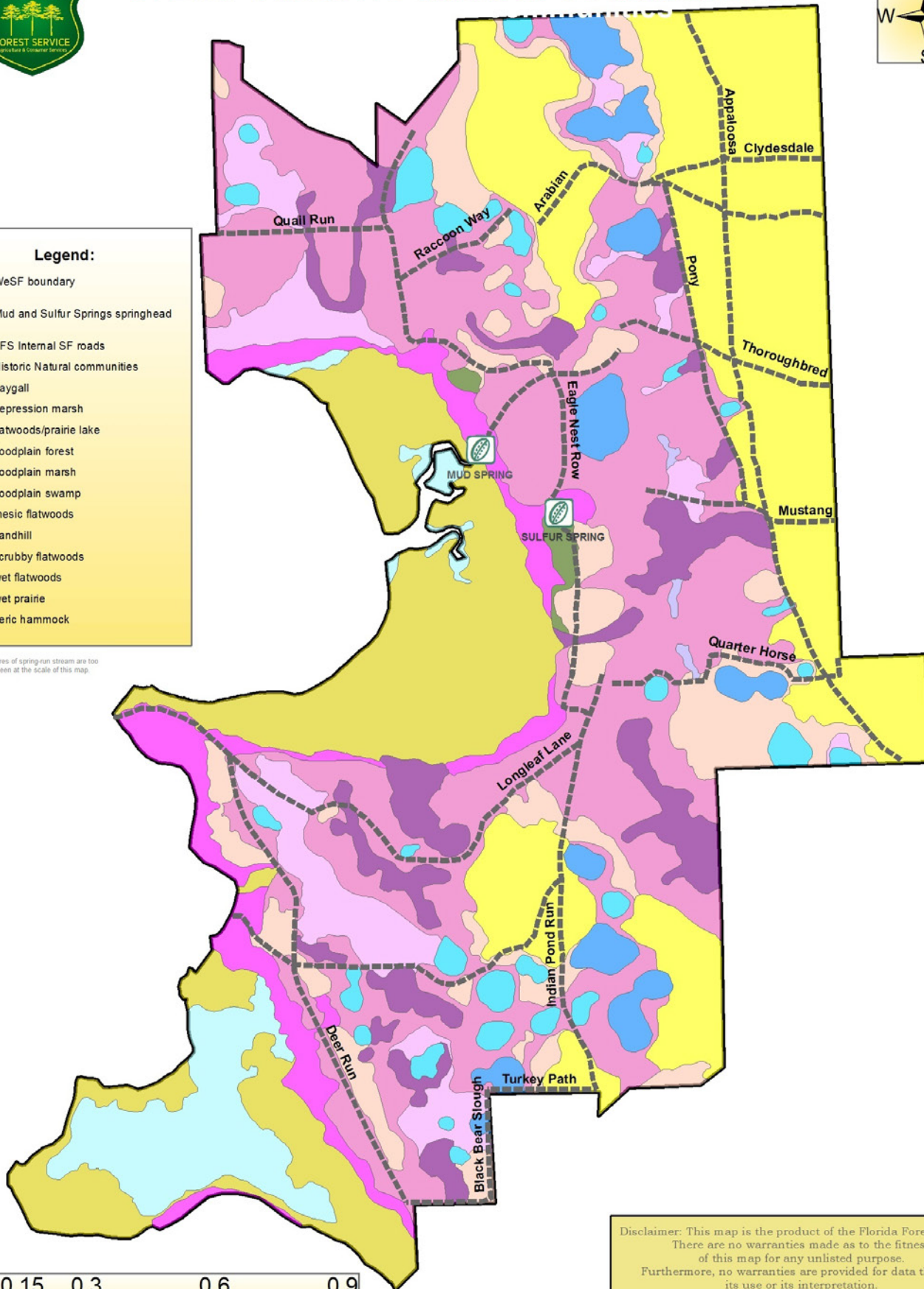
WESF Historic natural communities



Legend:

- WeSF boundary
- Mud and Sulfur Springs springhead
- FFS Internal SF roads
- Historic Natural communities
 - baygall
 - depression marsh
 - flatwoods/prairie lake
 - floodplain forest
 - floodplain marsh
 - floodplain swamp
 - mesic flatwoods
 - sandhill
 - scrubby flatwoods
 - wet flatwoods
 - wet prairie
 - xeric hammock

Note: The acres of spring-run stream are too small to be seen at the scale of this map.



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Date: 5/1/2013

EXHIBIT P

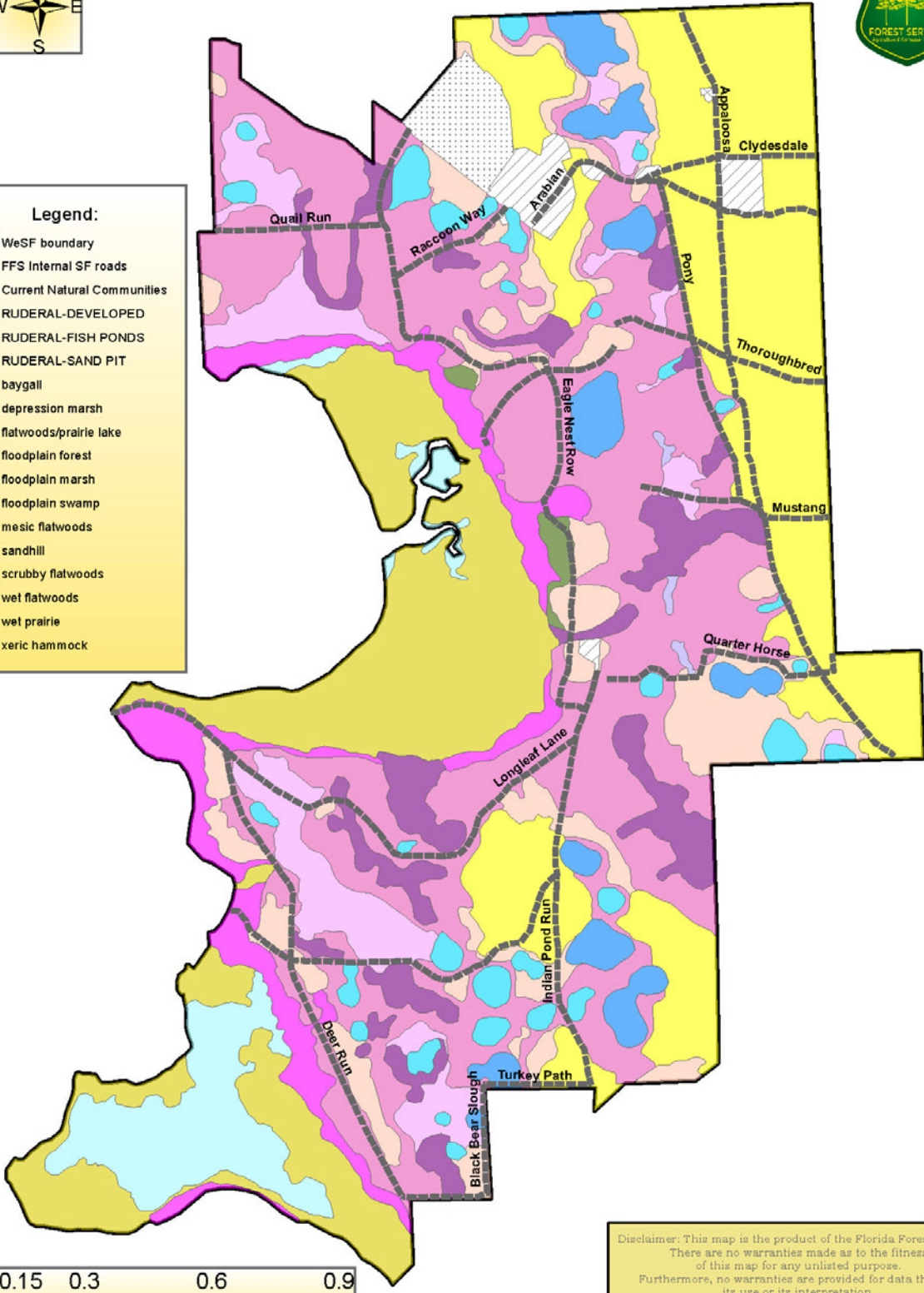
Current Natural Communities Map

WeSF Current Natural communities



Legend:

- WeSF boundary
- FFS Internal SF roads
- Current Natural Communities**
- RUDERAL-DEVELOPED
- RUDERAL-FISH PONDS
- RUDERAL-SAND PIT
- baygall
- depression marsh
- flatwoods/prairie lake
- floodplain forest
- floodplain marsh
- floodplain swamp
- mesic flatwoods
- sandhill
- scrubby flatwoods
- wet flatwoods
- wet prairie
- xeric hammock



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Date: 2/6/2013

EXHIBIT Q

Mud Springs & Sulfur Springs Water Quality Data

Mud Springs Water Quality Data

Mud Spring	Min	Mean	Median	Max	Count	Period
Water temperature, °C	22.4	22.8	22.8	23.2	15	1995-2001
Specific conductance, field, $\mu\text{mhos/cm}$ at 25 °C	943	1056	1036	1272	14	1995-2001
Specific conductance, lab, $\mu\text{mhos/cm}$ at 25 °C	1010	1129	1117	1272	4	1995-2001
pH, field	7.25	7.68	7.67	8.05	12	1995-2001
Discharge, cfs	0.43	1.16	0.75	3.16	12	1995-2001
Calcium, dissolved, mg/L as Ca	37.4	42.7	42.7	48	2	1995-2001
Calcium, total, mg/L as Ca	35.8	39.1	38.5	46	14	1995-2001
Magnesium, dissolved, mg/L as Mg	16.8	18.7	18.7	20.6	2	1995-2001
Magnesium, total, mg/L as Mg	15.6	17.9	17.8	19.7	14	1995-2001
Sodium, dissolved, mg/L as Na	125.4	151.7	151.7	178	2	1995-2001
Sodium, total, mg/L as Na	115.3	134.5	132.7	170	14	1995-2001
Potassium, dissolved, mg/L as K	4.1	4.9	4.9	5.6	2	1995-2001
Potassium, total, mg/L as K	3.8	4.4	4.2	5.4	14	1995-2001
Chloride, total, mg/L as Cl	223.6	249.5	251.5	296	13	1995-2001
Sulfate, total, mg/L as SO_4	33.5	39	39.2	43	14	1995-2001
Fluoride, total, mg/L as F	0.14	0.15	0.15	0.17	14	1995-2001
Nitrate + nitrite, total, mg/L as N	0.01	0.02	0.02	0.03	10	1996-2001
Nitrate + nitrite, dissolved, mg/L as N	0.03	0.03	0.03	0.03	1	2001
Phosphorus, total, mg/L as P	0.08	0.08	0.08	0.08	1	2001
Orthophosphate, total, mg/L as P	0.06	0.08	0.08	0.11	14	1995-2001
Alkalinity, total, mg/L as CaCO_3	80	83.6	83	88	13	1995-2001
Total dissolved solids, mg/L	489	570	567	667	12	1995-2001

Sulfur Springs* Water Quality Data

Sulfur Springs*	Min	Mean	Median	Max	Count	Period
Water temperature, °C	22	22.5	22.4	23.2	15	1972-2001
Specific conductance, field, µmhos/cm at 25 °C	1753	2032	2086	2130	8	1996-2001
pH, field	6.56	7.45	7.49	7.89	12	1972-2001
Discharge, cfs	0.16	0.29	0.28	0.45	13	1972-2001
Calcium, dissolved, mg/L as Ca	64	67.5	67.5	71	2	1972-1995
Calcium, total, mg/L as Ca	53.2	62.7	62.7	77	13	1995-2001
Magnesium, dissolved, mg/L as Mg	36.9	37.5	37.5	38	2	1972-1995
Magnesium, total, mg/L as Mg	31.2	34.5	34.6	39.1	13	1995-2001
Sodium, dissolved, mg/L as Na	320	336.5	336.5	353	2	1972-1995
Sodium, total, mg/L as Na	256.8	296.7	293.5	342	13	1995-2001
Potassium, dissolved, mg/L as K	9.4	9.9	9.9	10.4	2	1972-1995
Potassium, total, mg/L as K	7.5	8.8	8.9	10	13	1995-2001
Chloride, total, mg/L as Cl	523	566.9	563.9	608	14	1972-2001
Sulfate, total, mg/L as SO ₄	79	83.8	83	93	14	1972-2001
Fluoride, dissolved, mg/L as F	0.3	0.3	0.3	0.3	1	1972
Fluoride, total, mg/L as F	0.19	0.21	0.21	0.23	13	1995-2001
Orthophosphate, total, mg/L as P	0.05	0.06	0.05	0.08	12	1995-2000
Alkalinity, total, mg/L as CaCO ₃	97.7	103.7	103.3	109	13	1972-2001
Total dissolved solids, mg/L	1054	1134	1105	1300	12	1995-2001

* Also referred to by SJRWMD as “Forest Springs”