

Western Pond Turtle Survey and Monitoring

Grants Pass Resource Area Medford District Bureau of Land Management

Interagency Special Status Sensitive Species Program Report

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Introduction

The western pond turtle (WPT) is currently listed as a BLM Bureau Sensitive species. In 1993, the USFWS was petitioned to list the western pond turtle as a threatened or endangered species; however, the listing was denied due to inconclusive information regarding the species (USFWS 1993). Populations are thought to be declining over the northernmost and southernmost portion of their range due primarily to habitat loss and alteration. Subsequent fragmentation of remaining populations could leave them more susceptible to the effects of introduced species through predation, competition, and disease (Bury and Germano 2008.) In addition, motor vehicle traffic and recreational activities within or adjacent to aquatic or nest habitats are an important concern in some areas (USDI 2009).

The Medford District of BLM falls within the central core of the western pond turtle's range. While there is currently no documentation that southern Oregon WPT populations are in decline, some local long-term data seems to indicate that population growth may be slowing and populations may be becoming more adult-biased (personal communication S. Wray 2010). As human populations continue to increase across the southern Oregon landscape, it is likely that the western pond turtle will face increasing threats of habitat loss and human and non-human impacts similar to those outlined above. Because much of the WPT habitat in this area is in public ownership, the BLM will potentially play a large role in the conservation of the western pond turtle in this region (USDI 2009). It is important that we continue to monitor these turtle populations.

Background

During the mid-1990's, the Grants Pass Resource Area visually counted, captured, and marked western pond turtles at three locations. Visual-only surveys were done at two additional sites. The GPRA survey efforts at that time were not extensive and since the mid-90's, we have gained only sporadic information from incidental observations. We undertook the 2010 inventory and monitoring project to not only reconfirm historic pond turtle site use, but to expand our scope and to evaluate potential nesting habitat adjacent to each water source. Knowing these locations and their habitat conditions will help Grants Pass Resource Area biologists develop appropriate project design features, such as seasonal restrictions or buffers, in order to mitigate effects from future projects adjacent to these pond turtle locations.

Study Area

The study area is located in southwest Oregon on BLM lands within the Grants Pass Resource Area. Initially ten sites were identified for 2010 monitoring, each of which was reported to have historic presence of Western Pond Turtles. Six of these were riverine sites on the Rogue, Applegate, and Illinois Rivers and were subsequently determined to be poor candidates for trapping for this project because of difficult land access (best reached by boat) and/or low trapping potential (mainly swift water). Of the remaining four sites (all ponds), two had been previously trapped in the 1994-95 GPRA effort and another

one had been trapped in 2009 by Ashland RA biologists, providing the opportunity for recapture information. Two additional pond sites were checked for suitability and included in the project. A seventh site was discovered late in the season and was not trapped, but because of its high potential for habitat enhancement, it is included in the descriptions.

2010 Site Descriptions:

French Flat Pond

This small pond has no obvious inlet and was likely created by past surface mining operations. It is located on a large serpentine flat within 1/4 mile of the Logan Cut water ditch. Some basking logs are present and abundant potential nesting areas are adjacent to the pond. In spite of the area's restrictions as an Area of Critical Environmental Concern, OHVs are a continued presence and threat to turtle movement and upland habitat use. Current plans for mining in the area are an additional concern.

Lippert Reservoir (visual observations only in 2010, but site has good prospects for trapping & for habitat enhancement.)

Lippert is a large agricultural reservoir situated on BLM land and fed by Camp Meeting Creek. Basking logs are present, but numbers are minimal. Since about half of the surrounding upland habitat is fairly steep forested hillsides, the best potential nesting areas appear to be below the reservoir in private fields. The site is adjacent to 500+ acres owned by *Pacifica*, a non-profit educational organization. *Pacifica* has a large pond just downstream from the site and apparently also draws irrigation water directly from the reservoir on BLM. As *Pacifica* currently has plans for integrating the BLM parcel into their nature study area, it seems to be an excellent opportunity for a cooperative effort between the public and private entities to share both monitoring and habitat enhancement of the turtle site.

Provolt Pond (previously monitored in 1995)

This is a moderate-sized reservoir at BLM's Provolt Seed Orchard. Minimal basking structures in the pond include two small wooden platforms plus an old tire. A small brushy island is also present, though there was no turtle use observed. Potential nesting areas are abundant in adjacent grassy fields, both outside and within the tree plantations. Dense vegetation could be an issue for terrestrial movement along some of the pond edges. The reservoir is within 0.6 miles of the Applegate River and Provolt Slough. River Otters have reportedly been observed in the pond. A busy rural highway (SR238) runs adjacent to the pond's south edge and would likely inhibit turtle movement in that direction. This seed orchard is scheduled to close and the future fate of the site is unknown.

Sawdust Pile Ponds

This is a complex of three small ponds in the upper Jumpoff Joe Creek drainage.

The southern pond (subsequently learned to be on private land) is likely fed by a small tributary east of Jumpoff Joe Creek and appears to have been created as part of an old mill operation. The major turtle basking features are old structural beams and other dimensional lumber. The water surface area decreased significantly between visits 1 and 2. There is some gentle upland habitat to the east, also on private land. A potential nesting area is an adjacent grassy meadow which is deeply rutted by old vehicle tracks.

The northern two ponds are located on BLM land on a side channel also east of the main creek. The middle pond has an old beaver dam structure and is willow-edged, appearing to have been an impoundment for several years. The northern "pond" appears to be a recently-dammed (so possibly

temporary) settling pond with flooded alder and other riparian vegetation. Five juvenile turtles were captured from these two ponds, which would seem to indicate a more productive site. Both of the upper ponds are part of an active mining operation and we observed a notable fluctuation in water depth and sediment levels between visits. As seasonal dredging/slucing is likely to be ongoing, this might be a good candidate site for continued monitoring and expanded habitat investigation. Potential nesting areas appear to be small patchy grass openings as well as a larger meadow on private land west of the main creek and road.

Sprague Pond (aka CASSO Pond) (previously monitored in 2009)

This large reservoir at BLM's Sprague Seed Orchard is fed by both a seasonal creek and the orchard well. Originally it was used for orchard irrigation and at some point as an educational site. There is a large protected central island. In recent years, beavers have also contributed abundant logs for both basking and aquatic cover. The turtle count here was one of the highest, likely helped as well by the chain-link fence excluding most predators. Potential nesting areas could be in the grassy tree plantations. This seed orchard is scheduled to close and the fate of the site is unknown.

Waldo Pond

This large pond is on the Fry Gulch tributary to the West Fork of the Illinois River. It was likely created during past extensive hydraulic mining operations. Turtles were observed basking on a small island and larger peninsula. Basking structures themselves are limited to dead shrubs and small wood. The best nesting potential appears to be south of the pond on a gradual open forest slope. Other surrounding areas appear to be heavily impacted by past mining activities and/or current Off Highway Vehicle use.

Wood Duck Ponds (previously monitored in 1994-95)

These two small ponds sit in a high-water side channel of the West Fork of the Illinois River. The water level in both ponds decreased significantly between visits 1 and 2, and the northern pond was completely dry by mid-August. Both ponds have basking logs present and there appears to be abundant potential nesting habitat on the upland flat to the west. Dense blackberry bushes and other invasive vegetation immediately adjacent to the ponds could be an issue for turtle ingress and egress.

Personnel

Robin Snider (Grants Pass lead biologist) submitted the funding proposal and obtained the scientific permit through ODF&W. Bonnie Brown served as project lead. A total of 22 government employees and volunteers were directly involved in one or more days of field work. These individuals included wildlife biologists and technicians from three Medford District BLM resource areas plus District Staff, an Oregon Department of Fish & Wildlife biologist, two retired BLM volunteers, a US Forest Service SCEP student, four high school interns, two employee spouses and two children. Two of the sites were on BLM Seed Orchard properties and the personnel at both orchards generously opened their facilities to us.

As part of our first trapping session, we hosted a highly informative two-day hands-on workshop with turtle experts and researchers R. Bruce Bury, USGS and Hannah Lucas, graduate student. This session was attended by biologists from BLM and ODF&W and, thanks to the excellent presenters, provided important practical guidance in field procedures.

Methods

Our basic survey design was taken from the *Western Pond Turtle Monitoring Plan (1998 update)*, a draft protocol written by Simon Wray of the Oregon Department of Fish & Wildlife and used in previous studies on the Medford District BLM. In accordance with this guide, we conducted the minimum number of three visits per season per site. The first visit was a visual observation only, the second visit a visual observation plus trap set in late afternoon/early evening, and the third visit the following morning consisted of a brief visual observation plus trap check and turtle processing. We used a minimum visual observation time of one hour for visits 1 and 2, and 30 minutes for visit 3, just prior to checking traps.

We also consulted the 2001 Draft *Western Pond Turtle: Survey Protocol and Monitoring Plan* written by the Interagency Western Pond Turtle Working Group (R. Bruce Bury, USGS, et al). As per this protocol, we targeted a maximum trap time of 15 hours. In addition, we utilized equipment lists and field procedures, and adapted various field forms.

Habitat Assessment and Visual Observations

In most cases, the first official visit was also the first time to the site, so basic site information was recorded at that time. A follow-up visit was made to most sites later in the season to take a closer look at aquatic, riparian and upland habitat and record more in-depth information as well as potential restoration opportunities.

Visual observations were conducted to protocol three times at each of the six targeted pond sites, once at one additional pond site, and once each at four riverine sites.

During both visual observation and trapping sessions, each site was also monitored for introduced species, such as bullfrogs and large-mouthed bass that are known to prey on young turtles, as well as other turtle species, such as red-eared sliders, that may compete with native turtles for basking sites and could potentially introduce diseases to the native turtle populations.

Trapping

For our capture/recapture efforts, we used seven Opera House-style traps plus two Hoop-style traps. Traps were set at the six target pond sites, including two sites with multiple ponds, for a total of nine individual ponds.

Captured turtles were checked for injuries, sexed, measured, weighed, and an attempt was made to age each by counting plastron scute annuli. Females were also checked for presence of eggs (none were noted). Before finally photographing and releasing the turtles, each individual was assigned an identifying number which was then notched with a file into the marginal scutes. The numbers were assigned according to one of two marking code systems, each of which gives different values to the same scute. Previous trapping efforts in GPRA had used the "Holland" codes with unique numbers in the thousands and we continued with that system at sites where there were previously marked turtles. At new sites, we adopted the simpler "Bury" system, starting numbers from 001 at any site that had adequate geographical separation from other sites. The marking code system employed at each site is shown in Table 3.

Sanitation was an important concern. All measuring equipment was wiped with alcohol between uses. Traps, buckets and reusable bait containers were sanitized with a 10% bleach solution after each session. Waders and boots were treated with a 0.3% QUAT solution between sites to reduce the spread of the amphibian chytrid fungus.

Results

Western Pond Turtles

Through visual observations, we were able to confirm the presence of western pond turtles at all of our target pond sites and at two non-target sites as shown in Table 1.

A total of 26 western pond turtles were captured and processed (measured, marked, etc) at the six target sites. Twenty-three of these were new captures and three were identified as recaptures (one from Grants Pass Resource Area's 1994 effort plus two from Ashland Resource Area's 2009 effort at a GPRA site). A total of 20 adults and six juveniles were identified, based on carapace length. We defined adults as having a carapace length >120mm (Bury & Germano 2008). Of the adults, 12 were determined to be female and eight were determined to be male. A full breakdown of the capture results are displayed in Table 2.

Non-native Species

A single non-native turtle (Red-eared Slider) was observed. Bullfrogs were observed in five ponds, Bluegills in three ponds, Small Mouth Bass in one pond, and Pike Minnows in one pond. See Table 2 for locations.

Table 1. Visual Observations

VISUAL OBSERVATIONS Site Name	1st VISIT date	# WPTs obsv'd	2nd VISIT date	# WPTs obsv'd	3rd VISIT date	# WPTs obsv'd	Maximum # obsv'd
Carpenters Island Slough (Rogue River)	6/15/10	0	discontinued due to difficult trapping conditions				0
East Fork Illinois River	5/5/10	0	discontinued due to difficult trapping conditions				0
Flanagan Slough (Rogue River)	5/6/10	2	discontinued due to difficult trapping conditions				2
French Flat Pond	5/15/10	2	6/16/10	2	6/17/10	1	2
Lippert Reservoir #2	6/23/10	2	8/17/10	3	8/25/10	1	3
Provolt Pond (Provolt Orchard)	5/13/10	3	6/22/10	2	6/23/10	1	3
Provolt Slough (Applegate River)	6/8/10	0	discontinued due to difficult trapping conditions				0
Sawdust Pile Pond south	5/2/10	4	6/29/10	0	6/30/10	2	4
Sawdust Pile Pond middle	site not discovered yet		6/29/10	1	6/30/10	3	3
Sawdust Pile Pond north	site not discovered yet		6/29/10	0	6/30/10	2	2
Sprague Orchard (CASSO Pond)	5/12/10	13	5/26/10	5	5/27/10	No formal observ.	13
Waldo Pond	5/5/10	1	7/27/10	2	7/28/10	2	2
Wood Duck Pond #1 north	5/4/10	3	7/20/10	0	7/21/10	0	3
Wood Duck Pond #2 south	5/4/10	0	7/20/10	2	7/21/10	0	2

Table 2. Trap Results

These results are from a single trapping session at each site. Traps were set following the 2nd visual observation (see Table 1 for date).

TRAP RESULTS Site Name	# traps set	total WPTs caught	# recaps (original year)	# adults	# juvs	# adult males	# adult females	# other turtle species	bullfrogs? Y/N	fish species
French Flat Pond	9	1	0	1	0	0	1	none	Y	none
Provolt Pond (Provolt Orchard)	9	0	0	0	0	0	0	none	Y	none
Sawdust Pile Pond south	3	1	0	1	0	0	1	none	N	none
Sawdust Pile Pond middle	3	5	0	1	4	0	1	none	N	none
Sawdust Pile Pond north	3	1	0	0	1	0	0	none	N	none
Sprague Orchard (CASSO Pond)	12	9	2 (2009)	9	0	5	4	none	Y	Sm Mouth Bass
Waldo Pond	9	8	0	7	1	2	5	1 Red Slider	Y	Bluegill
Wood Duck Pond #1 north	2	0	0	0	0	0	0	none	Y	Bluegill
Wood Duck Pond #2 south	4	1	1 (1994)	1	0	1	0	none	Y	Bluegill, Pike Minws
TOTALS		26	3	20	6	8	12			

Table 3. Turtle identification, age, sex

Maximum carapace length as compared to age estimates might indicate variable growth rates between sites or errors in counting scute annuli. Sex determinations in parenthesis indicate that sexual characteristics were perceived by the observers, but the turtle hasn't reached the size generally considered reliable for accurate sex determination @ carapace length = 120mm (Bury & Germano 2008.)

SITE		TURTLES			
POND NAME	marking code system	ID # (*recap)	max carapace length mm	estimated age by annuli	sex
French Flat	Bury	FF 01	154	13+	F
Provolt	Holland	no turtles captured			
Sawdust Pile north	Bury	SP 07	107	10	(M)
Sawdust Pile south	Bury	SP 01	125	14	F
Sawdust Pile middle	Bury	SP 02	128	11+	F
		SP 03	90	7	(F)
		SP 04	119	16	(M)
		SP 05	99	7	(F)
		SP 06	110	12	(M)
Sprague (CASSO)	Holland	*Spr 03	154	12+	F
		*Spr 05	153	13+	F
		Spr 10	163	6	M
		Spr 11	142	5	M
		Spr 12	125	6	F
		Spr 13	155	10	M
		Spr 14	152	8	M
		Spr 15	146	8	F
		Spr 20	139	6	M
Waldo	Bury	WP 02	154	15+	M
		WP 03	135	10+	F
		WP 04	131	unknown	F
		WP 05	141	unknown	F
		WP 06	121	11+	F
		WP 07	142	10	M
		WP 08	129	7+	F
		WP 09	88	6	(M)
Wood Duck #1 north	Holland	no turtles captured			
Wood Duck #2 south	Holland	*WD653	148	12+	M

Data Collection

All data will be entered into the GEOBOB database in early 2011. Original field data forms are on file at the Grants Pass Interagency Office. Site photos, individual turtle photos, habitat assessments, and other information are also being compiled at the GPIO office for use in future monitoring of these sites.

Discussion

Lessons Learned

Our 2010 monitoring effort gathered good baseline information about western pond turtle sites on GPRA. While the limited scope of the project (single trapping effort per site plus small number of traps) did not give us definitive population data, it seems like an excellent blueprint for a long-term population monitoring effort.

After doing the preparation work to get the project started, we realized that a multi-year plan would have served us better. The first year would have allowed time for locating and mapping sites and observation points, as well as for the time-consuming gathering of habitat information. It would also have allowed more time for collecting, testing, and repairing equipment as well as adapting and testing field forms. The following year (or years) could then focus on observations and trapping, ideally allowing for multiple capture/recapture efforts in order to gain a fuller view of the pond turtle population at each site.

We also learned a fair amount about monitoring logistics. It is valuable to schedule visual observations and trapping as early as possible in the survey season, and try to anticipate the intermittent sites. A lack of sunshine (and therefore turtle basking) this spring set back our initial observation visits. Our inexperience with the sites then left us surprised when some water levels had dropped dramatically by late June/July when we returned to trap.

Originally we had planned to monitor several historic WPT locations along the Rogue River, but soon realized that we did not have adequate time to plan for the challenges of surveying riverine systems. Boat access and high water issues alone make these sites much more difficult to study than pond sites.

The choice to use two distinct marking code systems will be a challenge requiring careful record-keeping to clearly identify "Holland sites" from "Bury sites" and to ensure that future recaptured turtles will be correctly identified.

Aging turtles by counting scute annuli (and recognizing false annuli) appears to be a skill requiring a fair amount of practice. In spite of our introductory training, we felt that we needed more experience before we could be confident in this method.

Potential Next Steps

A number of future monitoring and study projects for western pond turtles have been identified as a result of this project:

1. Continue visual observation and capture/recapture efforts. To build on the baseline information gathered this year on GPRA turtles and habitats, it would be highly valuable to target selected pond sites for continued visual observation and capture/recapture efforts as part of a long-term population monitoring effort. In addition, it could be valuable to repeat the assessment and monitoring process at other potential sites across the Medford District so that a district-wide monitoring network could be established. This effort in turn would contribute to regional knowledge shared through the fledgling interagency Southwest Oregon Turtle Working Group.
2. Conduct nest searches and telemetry studies. There is a significant data gap on nesting and wintering habitat. More research is needed to identify local nesting habitat and to determine upland habitat use in order to adequately anticipate impacts of various agency projects. Because riparian and wetland areas are generally afforded a higher degree of protection, the upland habitat likely has a higher potential for impacts from typical BLM management activities, such as hazardous fuels reduction. Systematic nest searches and telemetry studies could be conducted to help fill this data gap and to provide needed input for management plans. Searches for turtle carcasses following broadcast burns could be another monitoring technique.
3. Evaluate habitat threats and restoration opportunities. Potential threats to turtle sites (such as OHV and mining) were noted during habitat evaluations. These threats could be evaluated and prioritized for the development of possible mitigation measures. Likewise, both general and specific habitat restoration opportunities were noted. These ideas could be evaluated and restoration projects initiated.
4. Conduct visual observation and habitat assessment on river sites. Grants Pass Resource Area has many incidental reports of western pond turtles on the Rogue and other local rivers where recreation use is a management priority. More information is needed about these riverine sites in order to reduce or avoid impacts to the WPT populations. The Rogue River Recreation Area Management Plan specifically includes pond turtle population monitoring in its overall monitoring plan (USDI 2003), but shortage of funding has so far precluded that action. It is also important to locate nesting areas along rivers and to anticipate likely habitats used for winter aestivation. Studies could be initiated with a more systematic approach to documenting riverine sites, such as by making visual observations of basking turtles a priority of scheduled boat trips and by mapping locations more precisely with GPS units. Those locations could then be revisited for assessment of the associated riparian and upland habitats. Capture/recapture methods such as snorkeling could be explored for use in moving water at selected sites.

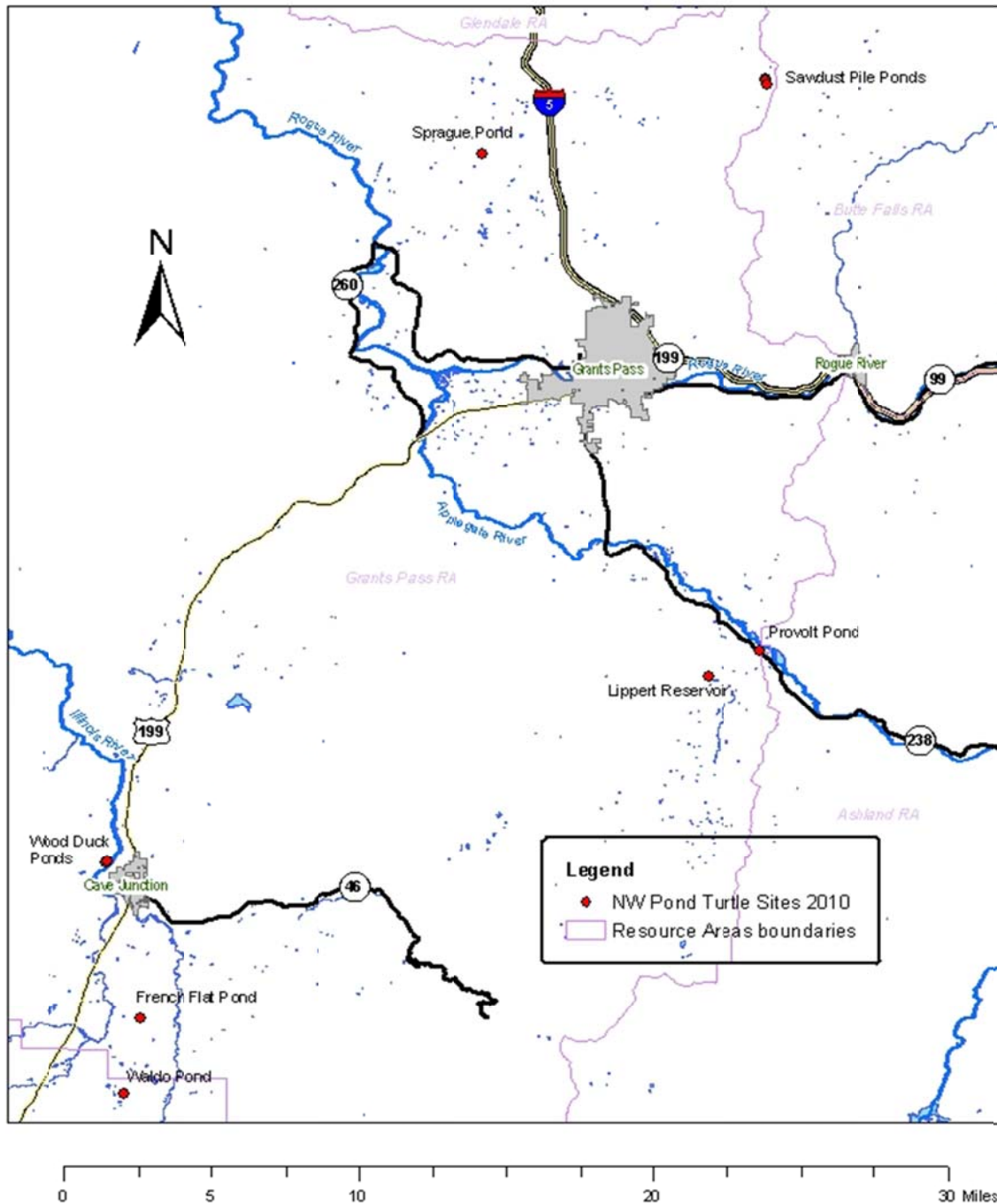
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Appendices:

Appendix 1: Site Map

**Northwestern Pond Turtle Monitoring Sites 2010
Grants Pass Resource Area
Medford District BLM**



Appendix 2: Photos



Waldo Pond site photo.



Checking traps at Wood Duck Pond.

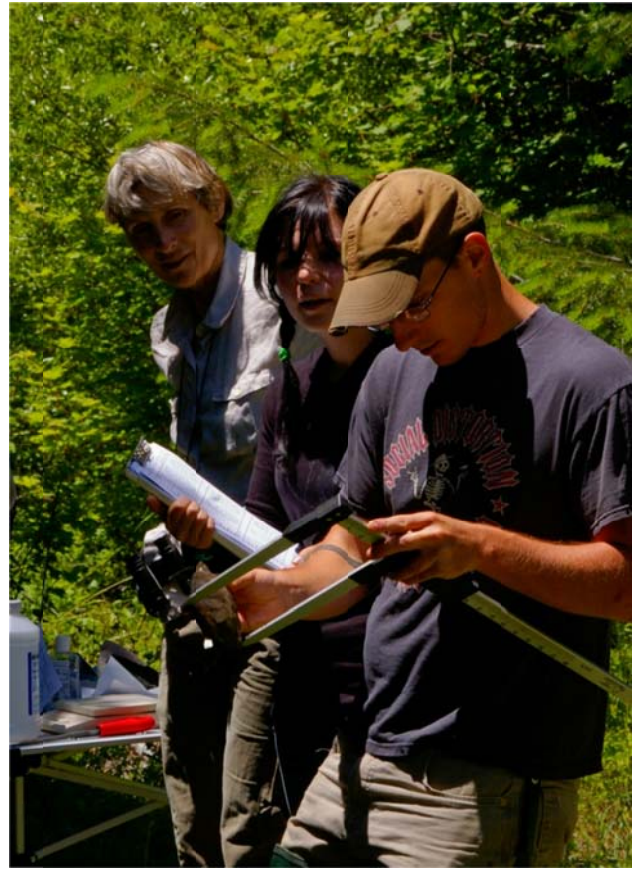


Juvenile Pond Turtle at Sawdust Pile Ponds.

Appendix: Photos continued



Weighing.



Processing.



Notching marginal scute.



Measuring carapace height.

Appendix: Photos continued



Turtle basking at French Flat Pond.



Sprague Pond site photo.



Releasing turtle at French Flat Pond.