Summary of 2009- 2010 Bald Eagle Tracking Project

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Refuge Biologist
Eastern Virginia Rivers NWR Complex

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The Rappahannock River Valley NWR has partnered with the Virginia Department of Game and Inland Fisheries (DGIF) to learn, by use of tracking devices, the locations of bald eagle high use areas for foraging and roosting. Tracking will provide insights on the migration patterns and demographics of northern, southern and Chesapeake Bay populations of bald eagles that converge here. This information will be used to assist land managers and conservation biologists on protection of critical areas. DGIF is also tracking golden and bald eagles in the western part of the state. Funds provided by the USFWS Region 5 Challenge Cost Share supported the purchase of a rocket net, rockets, and other equipment for this project.

We trapped and banded 8 bald eagles between Dec 11 2009 and March 26 2010 on the Tayloe tract of the Rappahannock River Valley NWR. We conduct the trapping during winter months when the majority of the northern population converges on the Chesapeake Bay area. All eagles were captured using rocket nets and deer as bait. Prior to placement, we examine the deer with a scanner to test for lead fragments (if positive, the deer is not used). We attached FWS bands and purple-colored bands with letter codes to denote that these were captured in the Chesapeake Bay tributary. FWS band # are 0709-00601; 0709-00602, 0709-00603; 0709-00604; 0709-00606; 0709-00607; 0709-00608. The lettered bands are XA, XB, XC, XD, XE, XK, ZP, and ZU. Four of those eagles were outfitted with cellular tracking devices manufactured by Cellular Tracking Technologies, Inc (CTT-Inc). These devices are solar-powered, use the existing network of cell towers. Each device has a unique ID. Device # 4808 was attached to a male that had just turned three, and weighed 9.11 lbs.; #4352 was attached to a 2nd year male, weighing 8.8 lbs, #3769 to a 5th year male, also 8.8 lbs; #3339 to a 2nd year female (?) weighing 11 lbs, and #0236 to a 2nd year male weighing 9.5 lbs.

Eagle #4352 traveled to upstate New York during the summer, and has recently returned to this area.

Eagle #4808 disappeared near the Susquehanna River in the Conowingo area of Maryland on March 22.

Eagle #3769 travelled to Maine and then into Canada over the summer and is now back Virginia (forested headwaters of the Dragon Run), but there has been no reception since Oct 28. Poor cell tower coverage may be a cause.

Eagle #3339--contact has been lost with this bird since Feb 16 2010. Last known location was at a very large bald eagle roost (approx. 2+ acres) on the Voorhees tract on the Rappahannock River, Westmoreland County.

Eagle #0236, went north into Pennsylvania just east of Philadelphia and also passing close to where #4808 disappeared on the Susquehanna. This bird has spent most of its year within the Chesapeake Bay area, and, unfortunately has discovered the landfill just north of Gloucester on the Middle Peninsula, Gloucester County, Virginia.

These data compliment that collected from boat surveys within the bald eagle concentration areas on the Potomac, Rappahannock, and James Rivers (VDGIF data unpub'd). We expected that tracked eagles would favor the high use areas observed from boat surveys. To some extent, this has been the case but

the patterns of use also show shifts in site fidelity, high mobility. The movements and use patterns can be viewed in saved images from the GoogleEarth-CTT downloads and stored in refuge files (see figures below). It is also interesting that all but one of our captures are juveniles, who are perhaps less wary. Patterns of habitat use may be different between adults and juveniles. Continued effort to trap eagles may increase our chances in capturing more adults.

In addition, blood samples were taken from all eight birds as part of a Virginia Tech (Dr. David Kramer) research project on mercury and lead in bald eagles. The samples will also be useful sexing the birds. Samples are enroute to the lab this month (Nov 2010). At this writing, the results of the blood sampling has not been completed or distributed.

Figure 1: Close up view of Eagle 3769 as of Feb 25, 2010 showing intense fidelity to specific areas on Northern Neck and Middle Peninsula, Virginia. Image from CellTrackTech Google Earth Account.

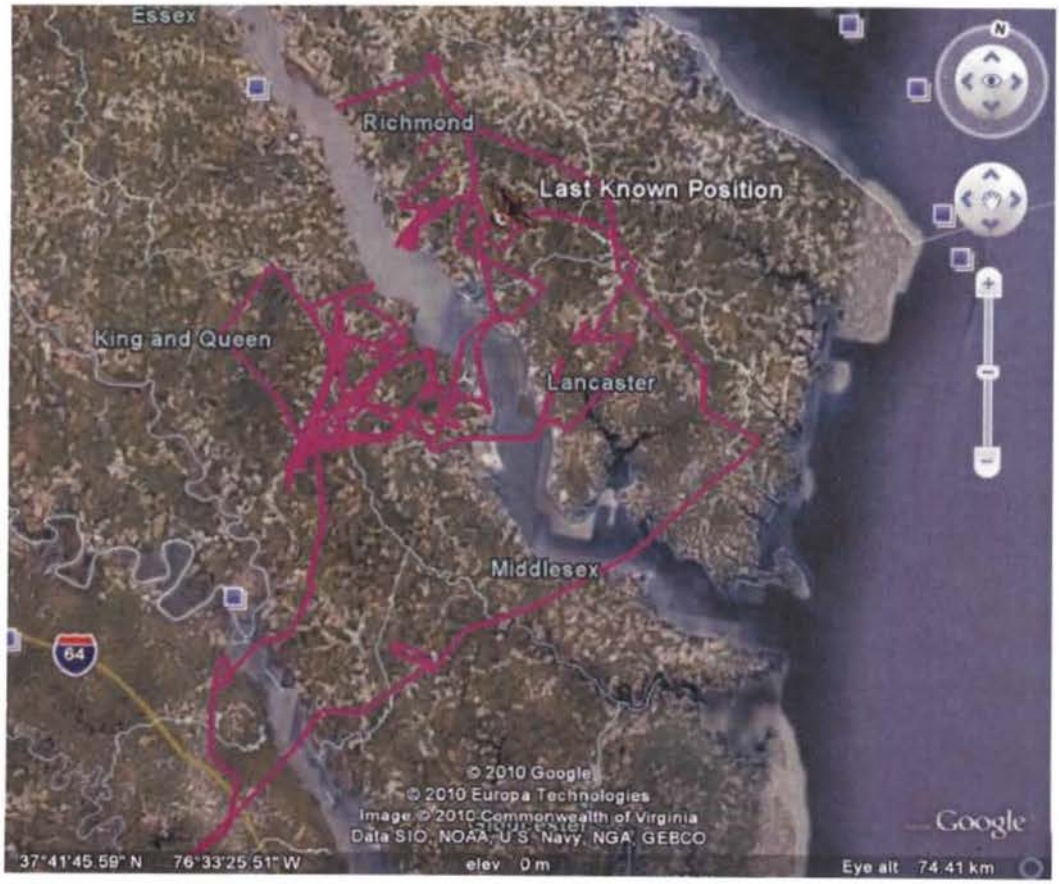
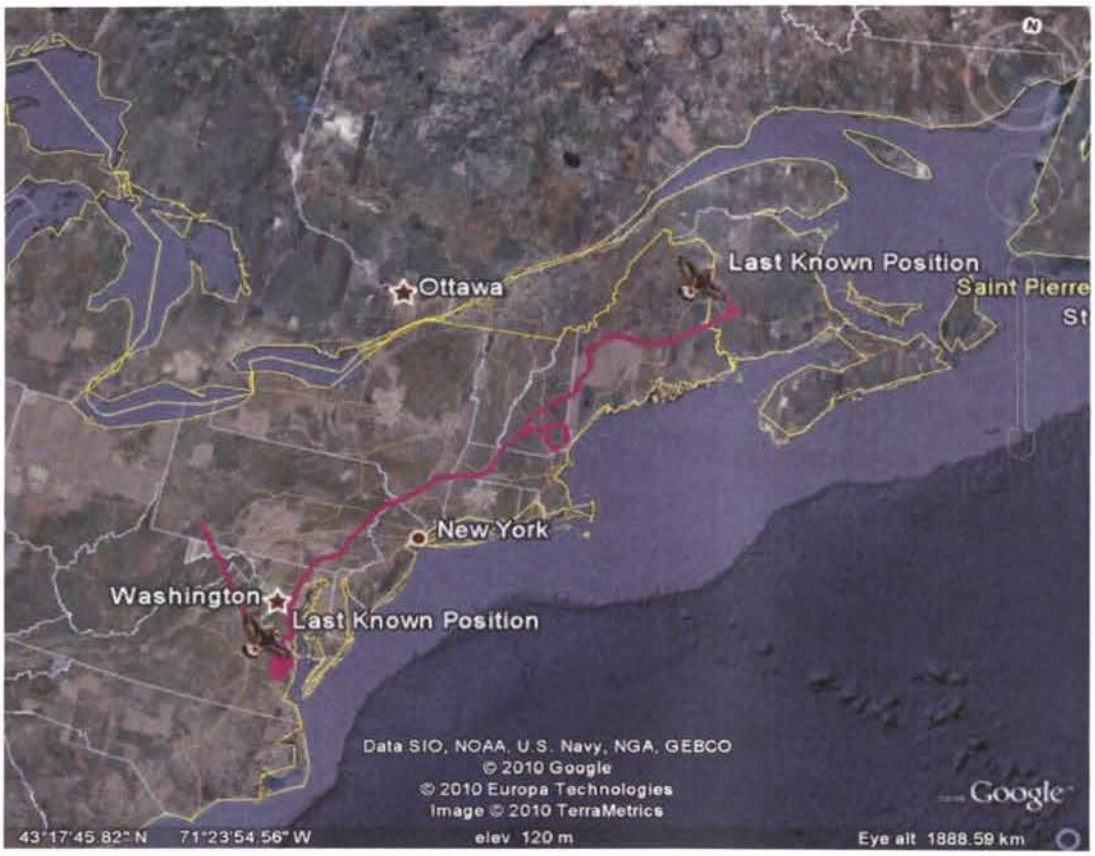


Figure 2: Overview of Eagle 3769 route as of Aug 24 2010. Image from CellTrackTech Google Earth Account.



Tracking Bald Eagles with Cellular Transmitters

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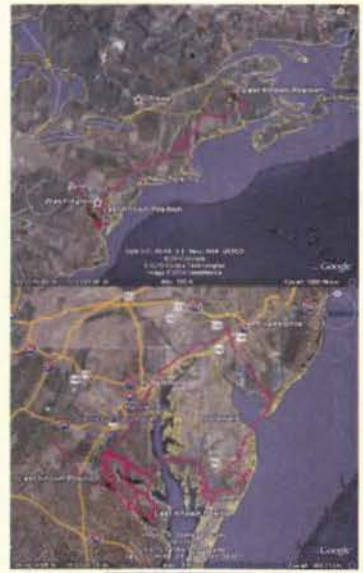
Bald eagles in the east exhibit north-south migration behavior and converge on the Chesapeake Bay area during some portion of their annual cycle. Discovering and observing nest sites is comparatively easy, but learning the locations of stopovers, communal roosts, and foraging areas is difficult without tracking devices. A relatively new and less expensive technology (compared to satellite transmitters) affords the ability to observe their migration patterns and movements over the course of a year using cellular technology. Solar-powered transmitters developed by Cellular Technologies, Inc., take advantage of the existing cellular networks and can transmit GPS locations, altitude and speed every 15 minutes. The data can be observed through a user-friendly Google Earth interface displaying the tracks over time making possible remote but close examination of roosting and foraging sites. The data can also be downloaded into a GIS for further analyses. This could be a valuable tool for identifying and protecting bald eagle roosting and foraging habitats and partnering with private landowners. In partnership with the Virginia Dept. of Game and Inland Fisheries, the National Aviary, and Cellular Tracking Technologies, Inc., Rappahannock River Valley NWR outfitted 5 eagles in Jan-Feb 2010.

- Observe tracks through Google Earth
- Zoom in/zoom out to desired scale

Top: overview of entire track of one eagle; middle: regional view; bottom: close up, 3D view



Solar powered, 100g, 100mm x 40mm cellular GPS transmitter on adult and immature bald eagle.

L: Mike Lanzone attaching unit; R: VDGIF Biologist Jeanette Parker holding eagle.

Date	Location	Speed	Voltage	Altitude
	3938977N			
3/24/2010 7:1	076 03852W	0 mph	3.92V	9
	3938975N			
3/24/2010 6:5	076 03849W	0 mph	3.91V	8
	3938998N			
3/24/2010 6:4	076 03839W	3 mph	3.92V	40
	3938705N			
3/24/2010 6:2	076 02654W	35 mph	3.92V	227
	3938953N			
3/24/2010 6:1	076 03984W	8 mph	3.91V	141
	3938436N			
3/24/2010 5:5	076 01186W	0 mph	3.91V	22

Current and previous data downloads to importable table for analysis in Access, Excel, ArcGIS. Coordinates are linked to Google Earth.

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