

NAS  
South Weymouth  
Rubble Disposal Area  
Site Update

Restoration Advisory Board

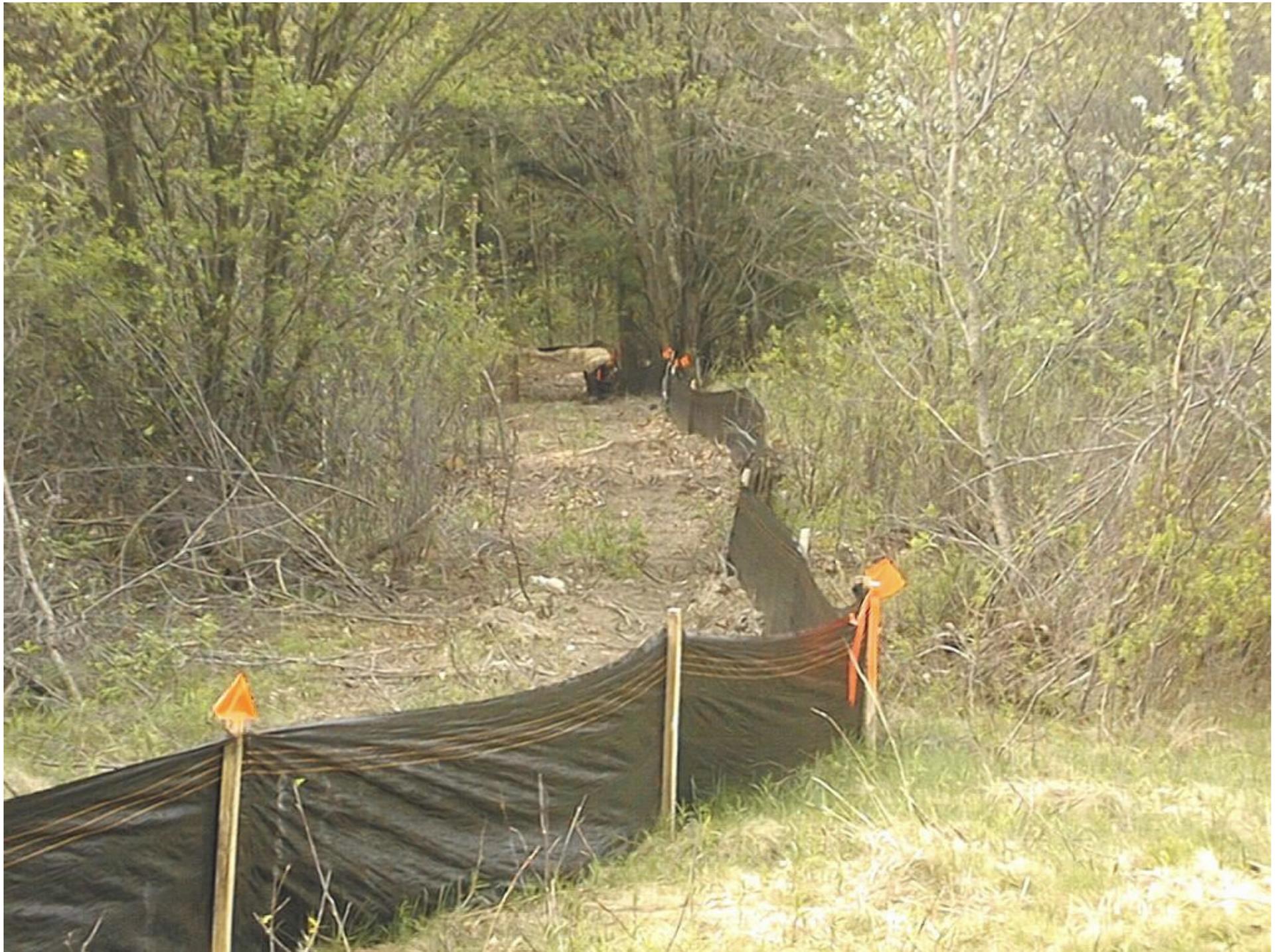
14 April 2005

Dave Barney

# Site History

- Record Of Decision (Dec. 2003)
- Construction Start (April 2004)
  - Hay Bales/Silt Fence
  - Clearing and Grubbing
  - PCB Area Excavation
  - Grading and Filling (Contour Site)
  - Install Soil Cover (Layers)













# Site Status

- Soil Cover more than 95 % Complete
  - PCB Area Excavation Incomplete
- Surface Hydro Seeded (Fall 2004)
- Perimeter Post and Rail Fence Installed
- Post Winter Inspection/Maintenance







# Next Steps

- Complete PCB Area Work
- Complete Soil Cover
- Finalize Post-Closure Plans
  - Long Term Monitoring Plan
  - Operations & Maintenance Plan
  - Land Use Control Plan

# PCB Area Work

- Navy to Complete Work
- Meet ROD Requirements via:
  - Excavation
  - Delineation/Sampling
  - Cap Extension
  - Combination of above
- Regulatory Concurrence

# Long Term Monitoring Plan

- Define Media to Monitor
  - Ground water, surface water, sediments
- Define Parameters to Monitor
  - Metals, PAH's, PCB's, other....
- Define Frequency/Duration to Monitor
  - Daily, Monthly, Quarterly, Annual
- CERCLA Five-Year Review

# Operation & Maintenance Plan

- Periodic Inspection of Soil Cover
  - Erosion
  - Settling
  - Fencing
- Vegetation Management
  - Grass Cutting

# Land Use Control Plan

- Institutional Controls
- Prohibit activities or uses that impact the integrity of the soil cover
- Navy responsible to implement & monitor







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## Turtle Investigation NAS South Weymouth Remedial Investigation



Restoration Advisory Board Meeting  
April 14, 2005



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## Focus on two species since 1999

- Spotted Turtle (*Clemmys guttata*)
- Eastern Box Turtle (*Terrapene carolina*)

### Two components

- Environmental Sites
  - ❖ MCP
  - ❖ CERCLA
  - ❖ EBS
- Basewide
  - ❖ Habitat-based



## Spotted Turtle

## Eastern Box Turtle



# Objectives

- Develop an understanding of turtle ecological requirements in order to minimize impacts to these animals from remedial activities
  - Determine the extent of spotted turtle and box turtle habitat and populations at NAS South Weymouth
- Collateral Benefits:
  - Collect ecological data on individuals and populations
  - Expand MANHESP database
  - Provide ecological data for re-development and other programs



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## Spotted Turtle

- State-listed Species of Special Concern
- Small aquatic and wetland species
- Prefers unpolluted, shallow bodies of water with emergent and/or scrub-shrub vegetation
- Found during cooler months -- difficult to find during summer months
- Uses temporary ponds (vernal pools) for feeding
- Nests in open sunny areas such as meadows or fields



# Spotted Turtle



Courtesy of Budd Titlow, Naturegraphs



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# Spotted Turtle



# Spotted Turtle Hatchlings



# Spotted Turtle Radiotelemetry



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## Eastern Box Turtle

- State-listed Species of Special Concern
- Small, terrestrial turtle with dome-shaped shell
- Primarily found in forested uplands, along stream corridors and early succession habitats
- Long-lived (100-plus years)
- May live in same area for many years
- Nests in open areas with sparse vegetation and, sandy soils



# Eastern Box Turtle



Courtesy of Budd Titlow, Naturegraphs



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# Eastern Box Turtle



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# Eastern Box Turtle

Female



Male



# Eastern Box Turtle

Female



Male



# Eastern Box Turtle



# Eastern Box Turtle



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# Eastern Box Turtle



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# Eastern Box Turtle



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# Eastern Box Turtle



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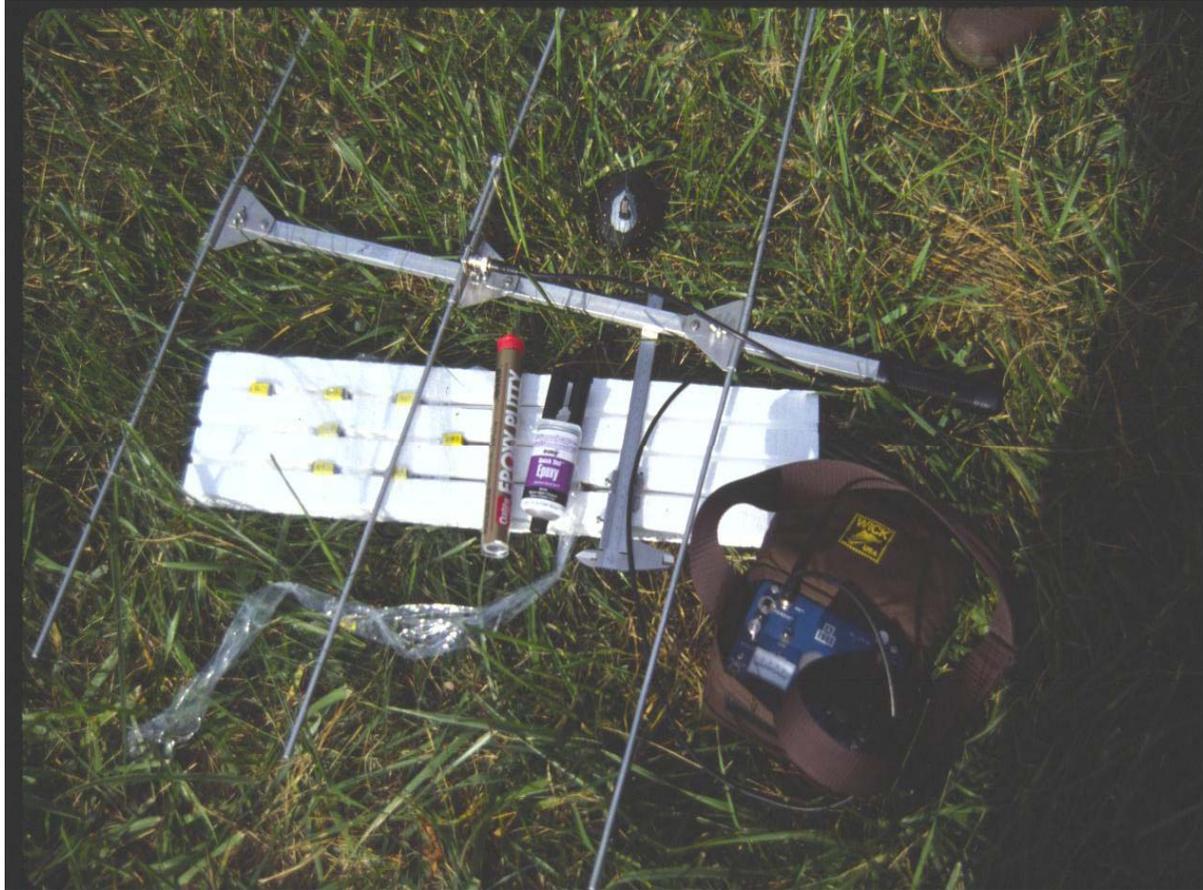
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# Survey Methodology

- Radiotelemetry
- Meander Surveys
- Trapping
- Focused Nesting Surveys
- Mark/Recapture Surveys



# Telemetry



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## General Observations

- Both species occur in wetland habitats, adjacent upland habitats, and terrestrial corridors connecting adjacent wetland habitats
- Both species observed on taxiways and access roads
- Turtle activity highest in spring and fall months
- Both species aestivate during the dry, hot summer months
- A large portion of all turtle observations occur within 500 meters of two CERCLA sites

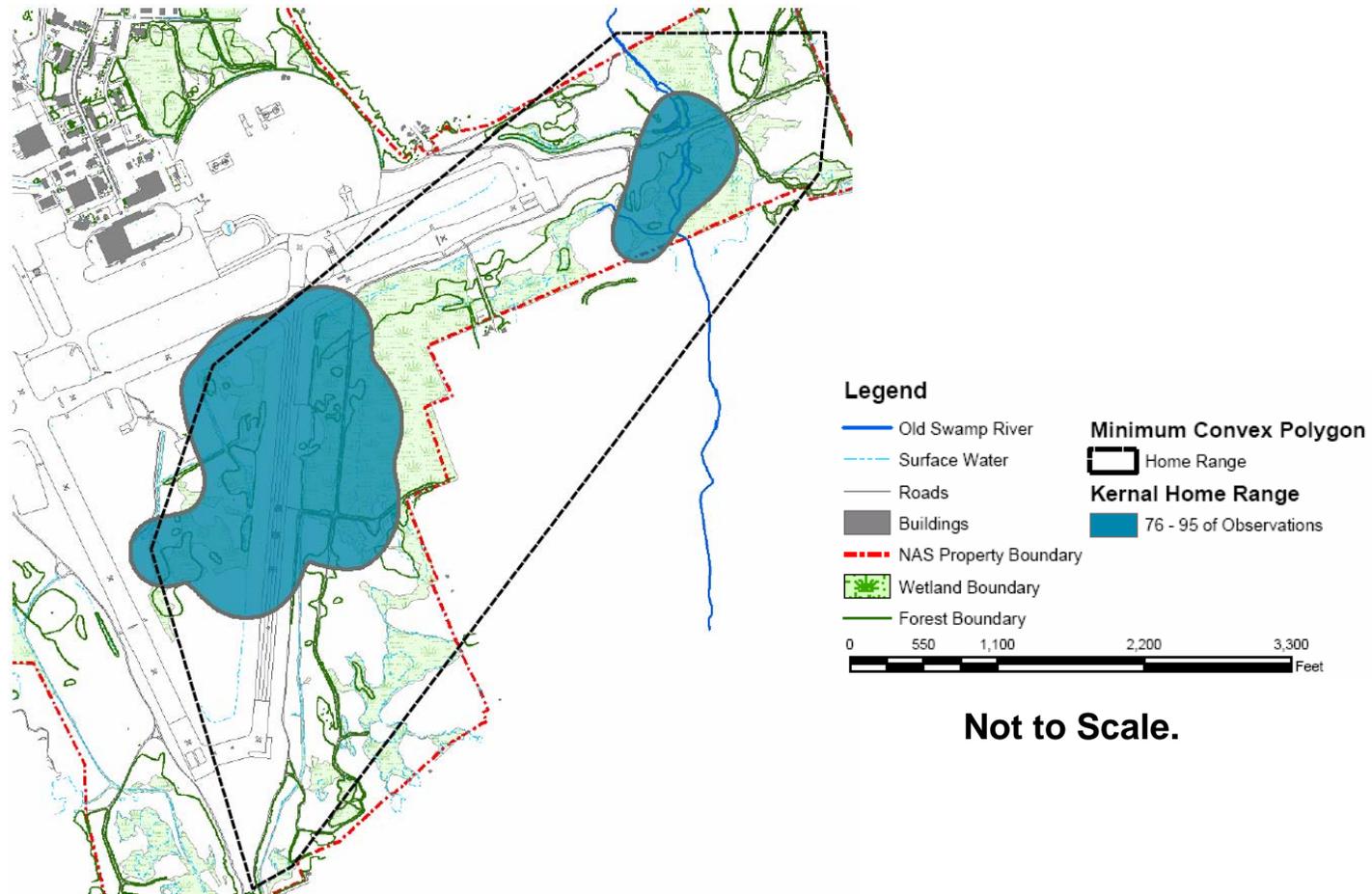


## Spotted Turtles at NAS South Weymouth

- 155 spotted turtles captured and marked to date
  - » 1999 - 17 individuals
  - » 2000 - 33 individuals
  - » 2001 - 42 individuals
  - » 2002 - 30 individuals
  - » 2003 - 25 individuals
  - » 2004 - 8 individuals
- 28 of the spotted turtles are juveniles (+2 sub-adults)
- Of the 125 adults, 51 are male & 74 are female
- Temporary wetlands provide key habitat
- Home-ranges from 0.10 to 15.38 ha with an average of 2.91 ha. (1 hectare = 2.47 acres)



# Example Spotted Turtle Radiotelemetry

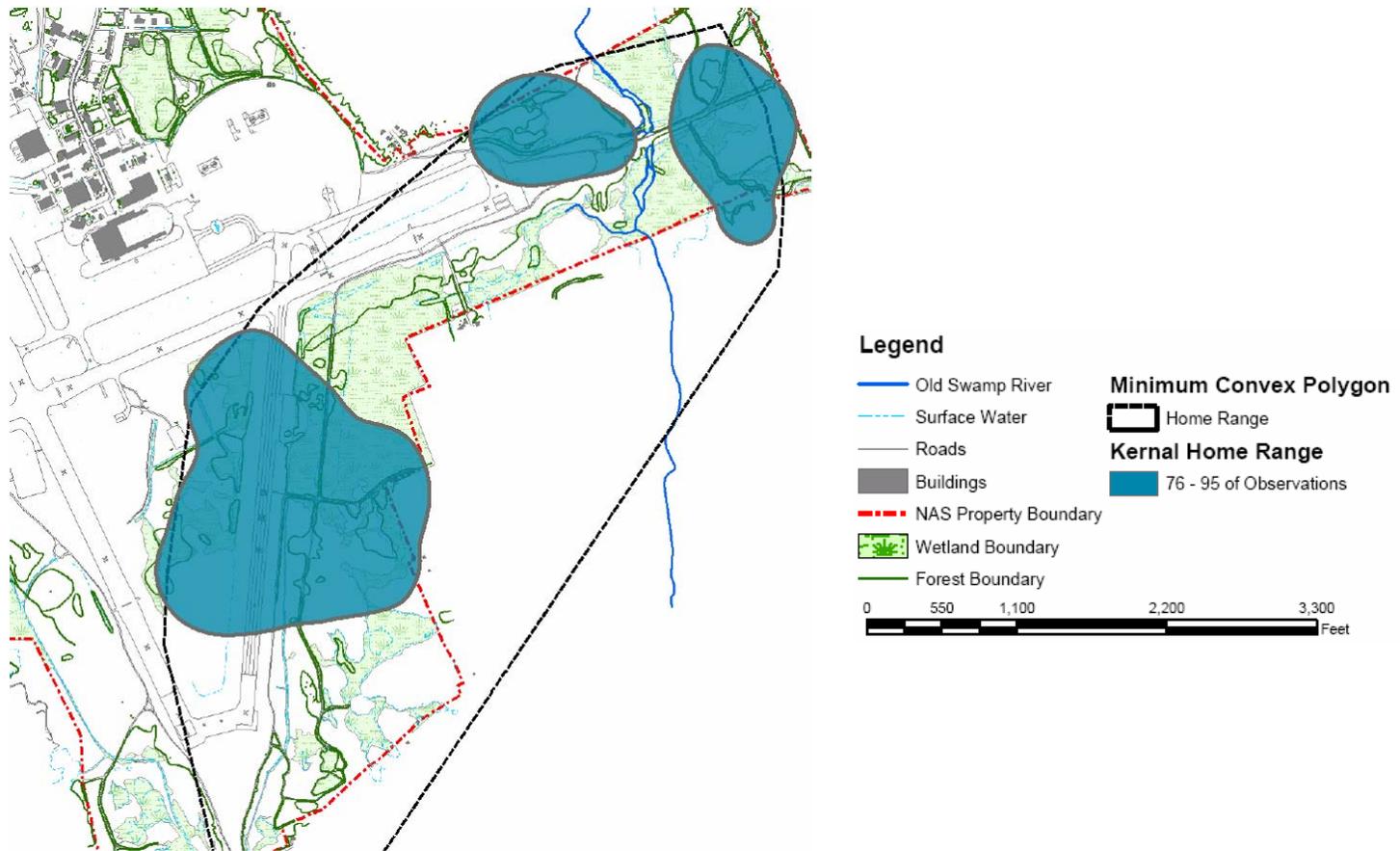


## Box Turtles at NAS South Weymouth

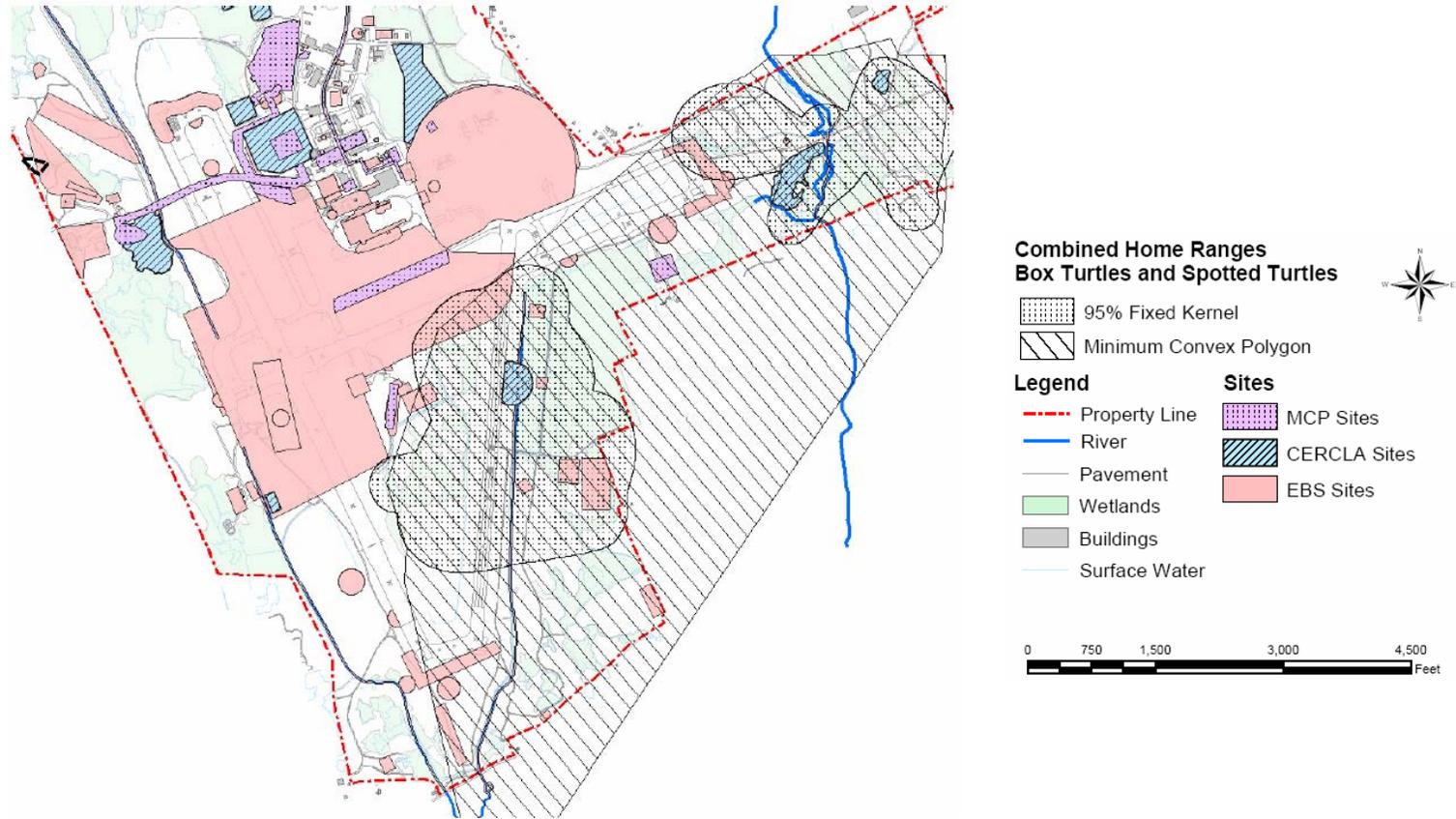
- 38 box turtles captured and marked to date (+1 shell)
  - » 1999 - 3 individuals
  - » 2000 - 13 individuals
  - » 2001 - 5 individuals
  - » 2002 - none
  - » 2003 - 8 individuals
  - » 2004 - 8 individuals (+1 empty shell)
  - » 2005 - 1 individual
- No juvenile box turtles have been located to date
- Of the 38 adults, 20 are female (approx. 53%)
- Stream bank community and upland forested areas are important habitats
- Home-ranges from 1.4 to 244.5 ha with an average of 29.6 ha. ( 1 hectare - 2.47 acres)



# Example Box Turtle Radiotelemetry



# Turtle Locations in Relation to Sites



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# Coordination of Environmental Programs

## ■ MCP Site

- ❖ Evaluated prior to sediment removal from ditch
- ❖ Trapping and meander surveys resulted in no turtles
- ❖ Silt fence exclusion devices installed despite poor habitat in area

## ■ EBS Site

- ❖ Treated in similar manner as FFTA



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# CERCLA Site Construction Oversight

- Area cleared of turtles prior to excavation
  - ❖ Detailed SOPs prepared for all elements of oversight
  - ❖ Telemetry and walkovers for 1-year in advance
- Turtle exclusion fencing installed prior to construction
  - ❖ Real-time radiotelemetry monitoring
  - ❖ Periodic perimeter monitoring
  - ❖ Turtle re-location as needed
- Contractor Education
  - ❖ Briefings to enhance awareness
  - ❖ Coordination of efforts
  - ❖ Quick-turnaround response to re-locate animals
- No substantive project delays as a result of careful coordination of efforts



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## Summary of Program

- 6 years worth of survey data
- Spotted turtles
  - ❖  $n = 155$
  - ❖ Population distribution appears healthy
    - » Adults and juveniles present
- Box turtles
  - ❖  $n = 38$  (+1 shell)
  - ❖ Population distribution appears weighted towards mature adults
    - » May be sampling artifact



## Conclusions

- Facility provides viable habitat for two state-listed species of special concern:
  - ❖ Eastern Box Turtle
  - ❖ Spotted Turtle
- Survey to continue through fall 2005
  - ❖ trapping and marking individuals
  - ❖ mapping habitat
- Remedial operations have been modified to ensure turtle habitat protected
- Recognition of substantial Navy effort by MANHESP and Mass Audubon
- Study has contributed substantially to scientific knowledge of both species

