



















# Monitoring Goals

- 1994 – 2006
  - Confirm continued ABB presence on Nantucket
- 2007 -- 2010:
  - Catch and provision as many ABBs as possible
  - Trap over entire known range
  - Collect baseline morphology and abiotic data
- 2011-- 2014
  - Significantly cut down on carrion provisioning (25 pairs)
  - Continue trapping for abundance and distribution
  - Continue to collect morphology and abiotic data











1994 - 2005





# Trapping Effort Expands

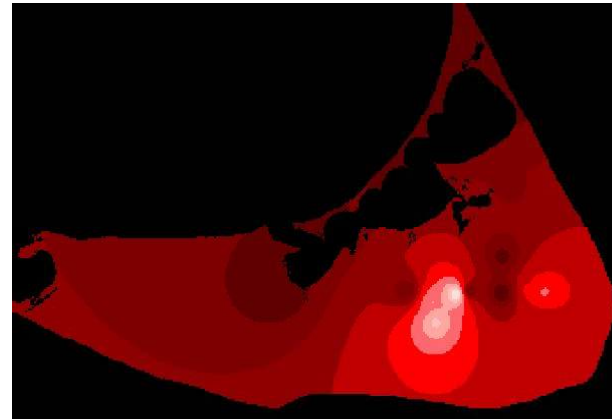
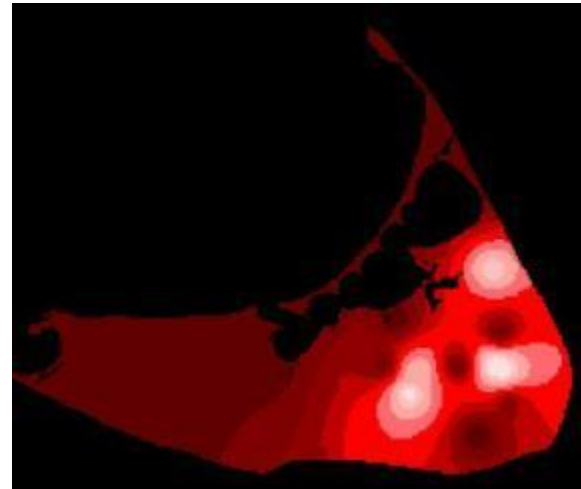
2006



2007



2008





2009, 2010,  
2011, 2012



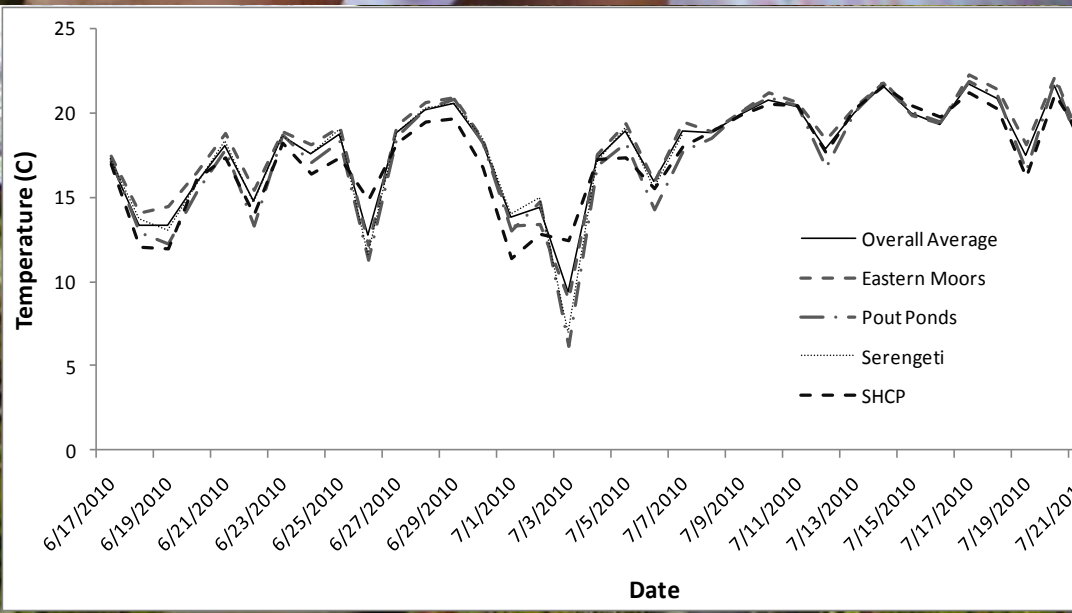
We have captured  
ABBs at all these sites.



# Proposed 2013 Trapping Grid

















# Initial Results = Success!

Year	Total Nights		Number ABBs/Trap Night
2004	360	33	0.092
2005	480	38	0.079
2006	640	50	0.078
2007	1,022	97	0.095
2008	1,348	112	0.083
2009	1,791	150	0.083
2010	1,663	191	0.115
2011	1,011	212	0.210
2012	1,237	115	0.093

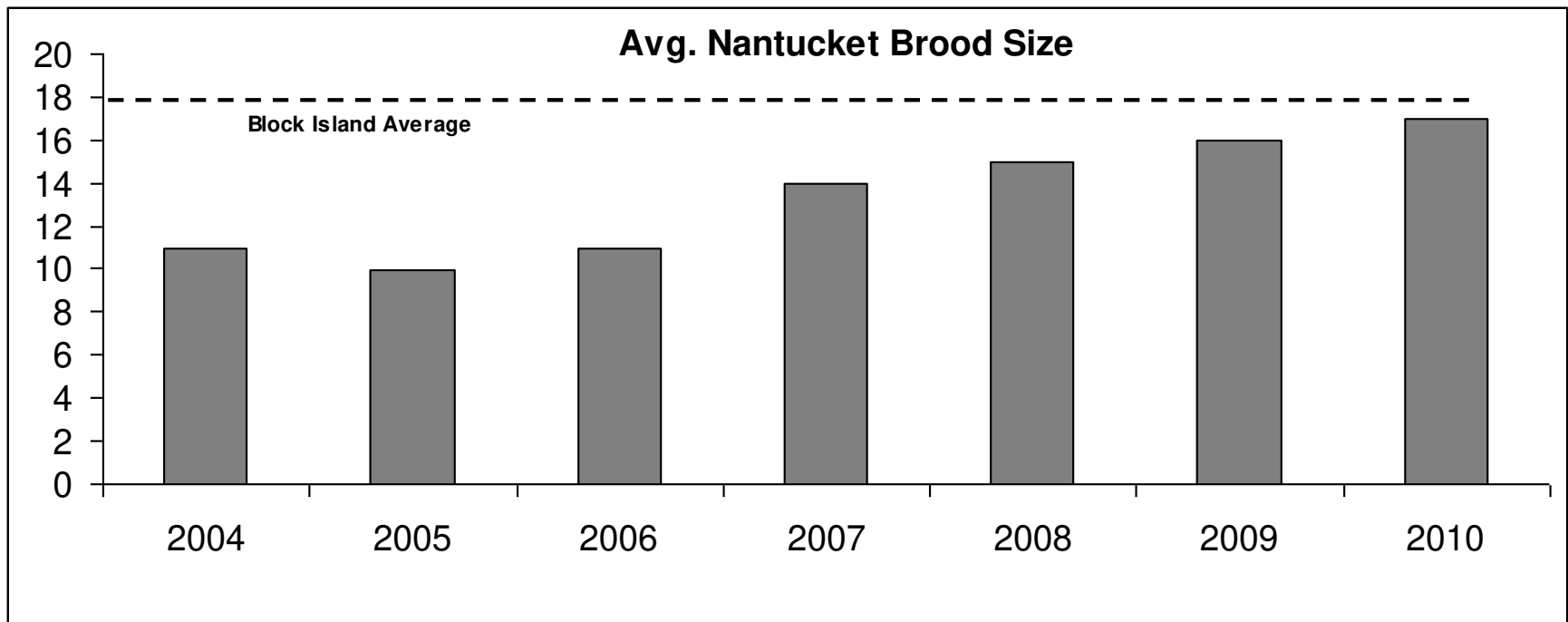
Since 2004:

- 1000 broods produced estimated  $7164 \pm 504$  larvae
- Average successful brood size =  $13 \pm 0.5$  larvae
- 53% brood success rate
- 14.2% overwinter recapture rate



# Additional Measures of Success

- ABBs captive bred for reintroduction:
  - produce fewer larvae than wild Block Island beetles
  - are smaller than wild Block Island beetles
- However, on Nantucket, their offspring do well:





# 2011-2013 Field Seasons

- Reduce the amount of carrion supplement to only 25 pairs
- Establish a gridded trap arrangement across the eastern island
- The possible dispersal of *N. americanus* across Eastern Nantucket will be more effectively assessed by such a trap arrangement, and uniform abundance of traps/site will allow for more robust comparisons of capture rates between locations. Five traps per site should be enough to monitor the population
- Discontinue trapping at Smooth Hummocks Coastal Reserve. Monitoring effort should be focused on the eastern side of the island into the near future
- Develop and implement a more robust method of measuring location and abundance of carrion on Nantucket
- Continue monitoring *N. americanus* population dynamics under reduced provisioning regime. If capture rates and total captures in additional low-provisioning years remain more similar to 2012 than pre-2012, consider returning to pre-2012 provisioning rates to ensure that the population does not continue to shrink

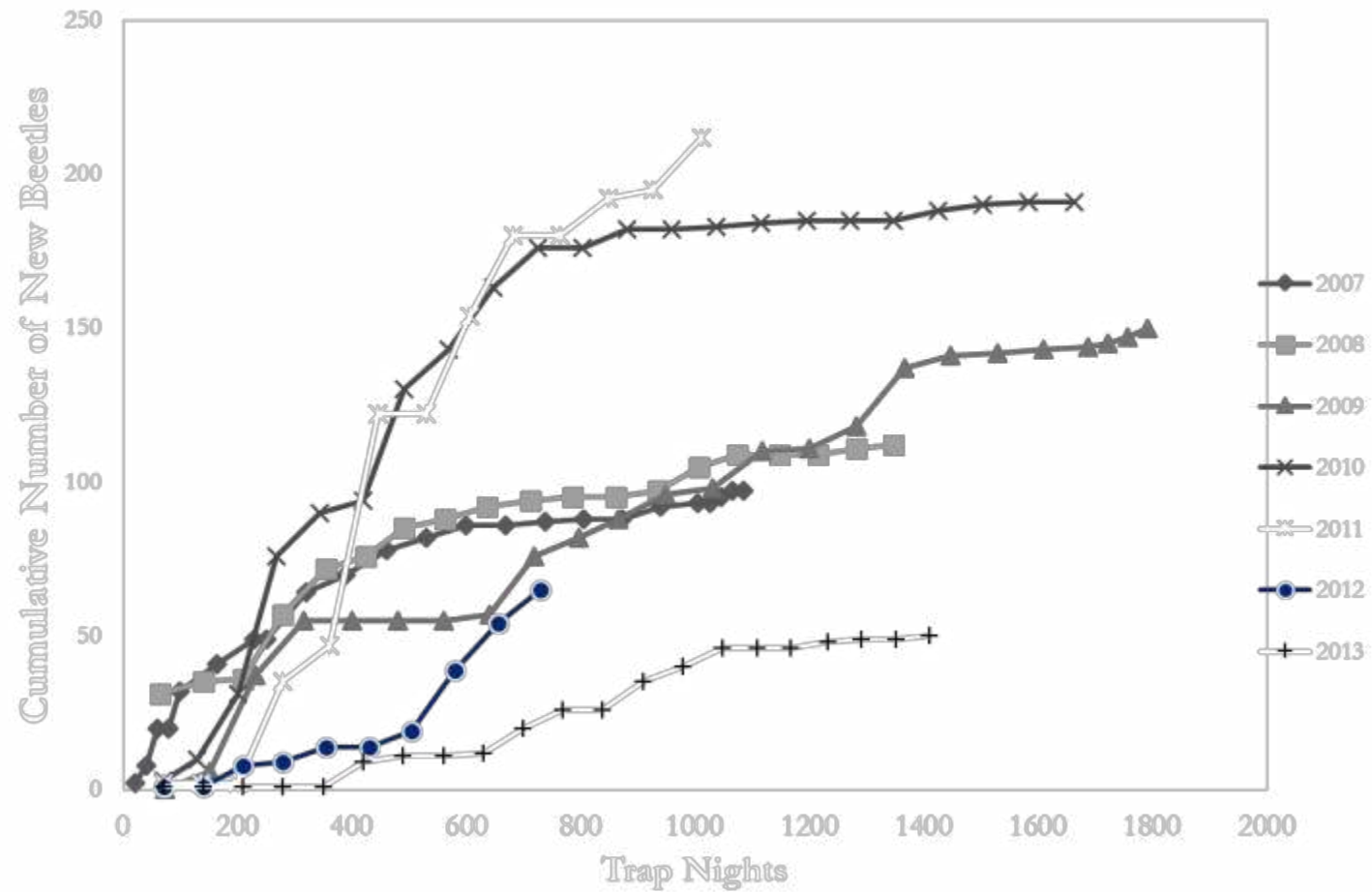




Year	Total Nights	Total Wild ABBs	Number ABBs/Trap Night
2004	360	33	0.092
2005	480	38	0.079
2006	640	50	0.078
2007	1,022	97	0.095
2008	1,348	112	0.083
2009	1,791	150	0.083
2010	1,663	191	0.115
2011	1,011	212	0.210
2012	1,237	115	0.093
2013	1,386	50	0.038



Trap Night Accumulation Curves 2007-2013



# Status of the Population 2013

- Low early summer *N. americanus* captures relative to all previous years suggests that the Nantucket *N. americanus* population has declined.
- Results suggest that provisioning Nantucket American burying beetles with carrion is a key factor in maintaining the populations.
- After three seasons (2011-2013) of provisioning only 25 pairs with a carrion resource rather than up to 100 in previous seasons, the capture rate has dropped by 83%
- Over winter survival is not a viable explanation for this decrease

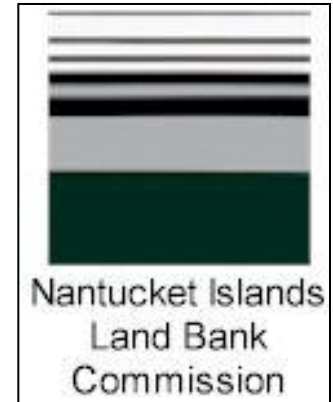




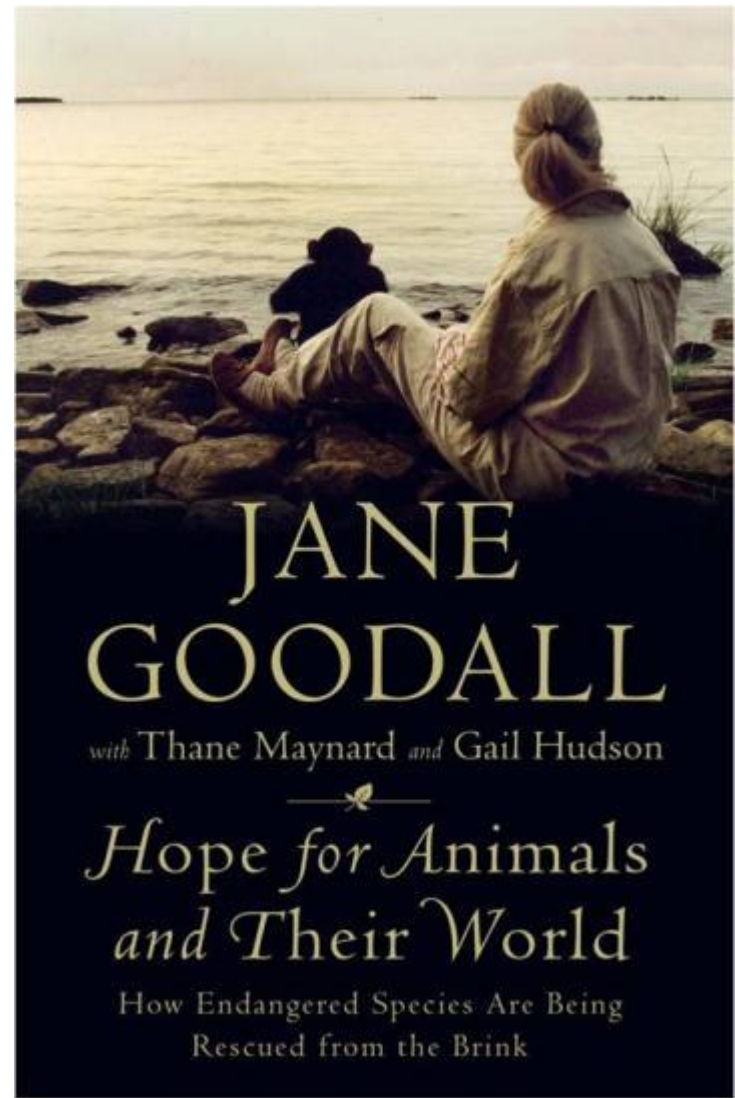
# The Take Away

- We have established a healthy population of ABB on Nantucket in both numbers and distribution through our efforts
- The recovery goal is a self-sustaining population
- Reducing the carrion supplementation in 2011-2013 was a critical point in the recovery effort resulting in a 83% loss in the population
- How long will the population continue survive with little or no carrion supplement
- How much suitable carrion is available during the active season?
- At this point we will need to continue to supplement the existing population with carrion if they are to continue to survive on Nantucket

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# THANK YOU

