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1. Accession 0224016	Agency Identification No. 2. SAES 3. LA.B	5. Work Unit/Project No. **LAB04066**	6. Status **Annual Report**

7. Title

A multi-project plan to address theoretical and practical problems in conservation genetics

12. Investigator Name(s) (Last Name and Initials)

Taylor, S. S.

20. Termination Date 12/31/2015	40. Period Covered (mo/da/year): 01/01/2011 TO 12/31/2011

Outputs:

Genotyping and sequencing for Bachman' sparrows are underway. Quarterly reports concerning striped bass genotypes have been sent to LDWF, and preliminary analyses were presented at the annual meeting of the Southeastern Fishes Council (November 10, 2011, Chattanooga, TN). Results for Peary caribou Mhc variation were presented at the Society for Conservation Biology meeting in Auckland, New Zealand, December 5-9, 2011; and the paper was submitted for publication to PLoSONE December 29, 2011. Mhc variation sequencing data for song sparrows is being analyzed, and preliminary results for 3 genes in the Mhc variation of red wolves were presented at the Wildlife Society meeting in Waikoloa, Hawaii (The Big Island), November 5 -10, 2011. A new project on Mhc variation in gopher tortoises was initiated August, 2011, and lead to participation in the Annual Gopher Tortoise Council Meeting in Orlando, Florida, 14-16 October, 2011.

Outcomes/Impacts:

Three individual striped bass identified by LDFW as "hybrid saxatilis" in the field proved to have 50% saxatilis alleles and 50% chrysops alleles. These are suggestive of F1 hybrids. Twelve individuals that were identified in the field as saxatilis have chrysops alleles at several loci, indicating both that back-crossing is occurring, and that such back-crossed individuals are capable of surviving to "catchable" size. Twenty M. mississippiensis sampled at Poverty Point (where saxatilis has never been introduced) were genotyped at these same 6 loci. Nearly all individuals had alleles unique to mississippiensis, except one individual at a single locus, which appears to have an allele shared with chrysops. Whether this is due to a distant hybridization event or to simply sharing this particular allele size is not known, but further genotyping of both species should help clarify this. However, the data in hand suggest that these loci are generally useful for detecting hybridization among all three species. Loss of variation at Mhc and microsatellite loci in Peary caribou was compared by using historical and contemporary samples. Similar proportions of genetic variation were lost over time at each type of marker despite strong evidence for selection at Mhc genes. These results suggest that microsatellites can be used to estimate genome-wide levels of variation but also that adaptive potential is likely to be lost following population bottlenecks. However, gene conversion and recombination at Mhc loci may act to increase variation following bottlenecks. Over 200 Mhc alleles have been identified at a single locus in Channel Island song sparrows, indicating very high levels of variation. Mhc variation analyzes for red wolves is ongoing; inbreeding coefficients have increased over time in red wolves but do not appear to affect reproductive success or survivorship. Primers for Mhc genes have not been identified for gopher tortoises. Preliminary results using degenerate primers developed for other species suggest that some published primers may be useable once modified and extended. Obtaining PCR product has been a major step in identifying gopher tortoise Mhc primers.

Publications:

Moyle, R.G., S. S. Taylor, C. H. Oliveros, H.-C. Lim, C.L. Haines, M.A. Rahman and F. H. Sheldon. 2011. Diversification of an endemic Southeast Asian genus: Phylogenetic relationships of the Spiderhunters (Aves: Nectariniidae). Auk 128:777–788.

Participants:

Taylor, S.S. (PI), B. Cerame, A. Bartlett, S. Woltmann, M. Landry, K. Daroca, K. Brzeski, J.Elbers, LSU AgCenter; collaborators include Robb Brumfield (LSU Museum), Bill Kelso (LSU RNR), P. Arcese (University of

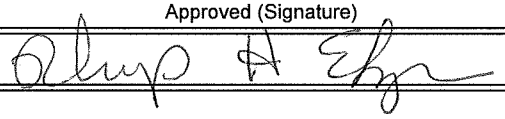
British Columbia), D. Jenkins (Government of Nunavut), A. Wilson (Smithsonian Institution), J. Lock (Smithsonian Institution), R. Fleischer (Smithsonian Institution), M.Chamberlain (University of Georgia) and D.Rabon Jr (US Fish & Wildlife Service).

Target Audiences:

Graduate students, the scientific community, LA Dept. of Wildlife and Fisheries, US Fish & Wildlife Service.

Project Modifications:

The nutria project was dropped because I didn't receive funding. The alligator project was dropped because there was no interest from Louisiana managers at LDWF or Rockefeller. A new project on Mhc variation in gopher tortoises was added.

Approved (Signature)	Title	Date
		3/23/12