

# Hybridization of the Endangered Hawaiian Duck

Museum of Wildlife and Fish Biology (MWFB) Research

## Are you a Hawaiian Duck?

The greatest threat to the endangered Hawaiian Duck (*Anas wyvilliana*, Koloa maoli) is currently hybridization with feral Mallards (*A. platyrhynchos*), but managers have been unable to effectively address the expanding hybridization problem due to plumage similarities and a lack of reliable criteria to differentiate Koloa from Mallards and Mallard/Koloa hybrids. To overcome this problem, MFWB Curator Andy Engilis, Jr. teamed up with Dr. John Eadie, of the UC Davis Dept. of Wildlife, Fish and Conservation Biology, to develop a morphological key to distinguish Koloa from Mallards/hybrids, consisting of key phenotypic characteristics, supported by genetic analysis. Together with Post-doc Ada Fowler and others, they have developed identification criteria using museum and collected specimens.

For more information on this issue refer to the USGS Fact Sheet 2007-3047. Found at: <http://pubs.usgs.gov/fs/2007/3047/>

In October, 2007 the field key was tested on live birds and additional specimens at Hanalei and James Campbell National Wildlife Refuges in Hawaii. The new samples are being analyzed to refine the criteria. The field key will be provided to wildlife managers in Hawaii. Initial findings:

- **Asymmetric hybridization:** most hybrids are the result of a male Koloa mating with a female Mallard
- **Phenotypic distinctions:** significant morphological differences between Mallards and Koloa when examined by age and sex such as mass, wing arc, and percentage of green on the head
- **Genetic distinctions:** reconfirms that Koloa are genetically distinct from Mallards
- **Site fidelity:** Koloa and hybrids have high site fidelity, and feral Mallards are most common in urban wetlands.



Above left: Andy Engilis, Jr., Jeremy Kwolek (UCD), Brenda Zaun, and Annie Marshall (USFWS) key out Hanalei NWR specimens (Photo by J. Fisher); Middle and above right: Hatching-year Koloa male (Photos by T. Snyder).

View Koloa research and management needs [\[link to poster\]](#)

View Koloa ducklings in action (video by B. Zaun/USFWS) [\[link to video\]](#)

**For more information:**

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Threatened by Feral Mallards: USGS Fact Sheet 2007-3047. Found at:  
<http://pubs.usgs.gov/fs/2007/3047/>

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