

## PROJECT DESCRIPTION

To describe wetland food use (i.e. diet) by northern pintail (*Anas acuta*), green-winged teal (*Anas crecca*, GWT) and mallard (*Anas platyrhynchos*) on Rainwater Basin (RWB) Waterfowl Production Areas (WPAs) at peak abundance during spring migration. Northern pintails are a target species of the North American Waterfowl Management Plan (NAWMP) and were designated as a science priority for 2011 by the Great Plains Landscape Conservation Cooperative. The RWB is believed to provide habitat for 30% of the continental pintail population during spring migration (Gersib et al. 1992). Additionally, the RWB Joint Venture's implementation plan estimates 50% of the midcontinent mallard population use RWB wetlands during the spring.

Wetland-derived seed resources may be a limiting factor for granivorous species, especially after peak populations of early migrants pass through the RWB area (Drahota 2012). We currently do not know how many green-winged teal use the RWB wetlands but they are abundant, pass through the RWB later than the other two species, and they are the most harvested species in North America (NAWMP). Euliss and Harris (1987) found GWT wintering diets were similar to pintail diets. Understanding food habits by these selected species will help determine if niche partitioning is occurring, which may redirect management efforts in such a way that will support fat acquisition for these species. This work may also support regional and national conservation efforts by providing data that will be incorporated in a bioenergetic assessment for monitoring the RWB WMD's wetlands. This will help meet objectives set by the RWBJV (Newton 2006, Drahota et al. 2008, Callicutt et al. 2011, Petrie et al. 2011).

## OBJECTIVES AND ALTERNATIVES

1) To evaluate food use of selected Anatidae that currently utilize the RWB as a mid-latitude refueling stopover and establish baseline data about dietary patterns.

2) To estimate carrying capacity of RWB habitats based on food use and wetland-derived forage availability (Drahota unpublished data).

3) To evaluate depletion rates caused by large populations of Anatidae in comparison to what is available and evaluate current management practices that may influence forage availability for concurring species use.

4) Evaluate the forage composition to determine how much each species rely on waste grain versus wetland derived resources and evaluate body condition as a dependent variable in diet selection.

5) Determine baseline body condition of three common species of waterfowl during peak migration use.

## METHODS AND PROTOCOLS

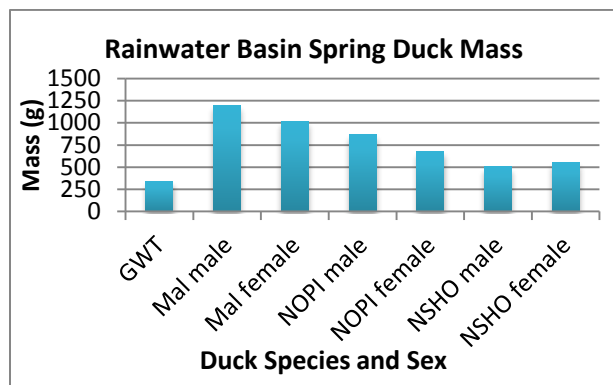
We monitored waterfowl populations during the first 6 weeks of spring migration to approximate peak abundance of mallard, pintail, and GWT. Bird behavior was monitored using a flock-scan technique (Altmann 1974) prior to sampling, birds exhibiting feeding behavior (dabbling, pecking, probing, grubbing, diving, and scything; following Davis and Smith (1998) were sampled during the 7-14 day peak abundance period for that species.

Whole birds were sent to Long Point Avian Energetics Laboratory, Port Rowan, Ontario. This lab is determining lipid content and determining food items consumed by 49 male northern pintail, 20 male and 12 female mallard, 2 male and 2 female northern shoveler, 1 male GWT.

## DATA ANALYSIS / MODELS

Ingesta are being categorized into plant and animal material. This data will determine the percent composition of pintail, mallard, and GWT diets as they forage in RWB wetland habitats. This data will be comparable to recently published data by Pearse et al. (2011). Preliminary results from morphometric measurements were collected for all birds sampled. This data will also help determine the energetic requirements for each guild. The histogram below

indicates that spring sample ducks in the RWB are smaller than published body mass estimates from wintering grounds (Baldassarre and Bolen 1994).



Forage quality is also being analyzed to determine nutritional quality of wetland seed resources available in the RWB. Some of these values are published, but many seeds found in the RWB do not have any published values. We also plan on evaluating forage quality for the RWB and compare the values to other published values in other stopover and wintering areas.

## DATA MANAGEMENT

Data for this project is currently stored in Excel files. These files will be downloaded into the Service's shared data base after the project is complete.

## PARTNERS

Over 7 people have been involved in the project, representing staff from the FWS, U.S. Geological Survey, the Rainwater Basin Joint Venture, and the University of Nebraska, Kearney (UNK).

## SOURCES OF SUPPORT

Volunteers from UNK were used to collect and record data. The UNK biological department also provided laboratory space for processing birds. USGS and the Avian Energetics Laboratory have both provided technical support.

2012 Contribution by RWB WMD: \$16,000.00

2012 Contribution by Partners: \$4,000.00

2012 Contribution by I&M Program: \$66,000.00

## CURRENT STATUS

This project is ongoing. We did not meet our sampling goals for 2012, but we are hopeful that 2013 will be a successful field season. Technicians will be interviewed field positions in January since the sampling season may be as early as the first week of February.

Laboratory work is ongoing and will continue throughout the winter. Ingesta categorization takes a considerable amount of laboratory work. Once the data has been entered, a general summary should be possible.

## CHALLENGES

Funding for this project was not received until after the peak migration period for most waterfowl occurred. Since we have a pintail project going at the same time, we were able to opportunistically collect 49 pintails and 32 mallards. GWT sampling was not attempted because field crews were not available during peak abundance.

Shipping birds to Canada was very difficult. A considerable amount of planning and paperwork was required; however, good planning and lots of communication with all parties involved ensured success. Minimal problems were encountered during the shipment of birds to Canada. This is apparently much different than other scientific work conducted by various organizations; most have had many problems crossing the border.

## MORE INFORMATION

Contact the Rainwater Basin WMD office for more information about this project:

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**FY12**

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