



PHOTO BY MIKE PETERS

CHANGES IN WHITE-FRONTED GOOSE ECOLOGY

by **DANIEL SKALOS AND DR. JOHN EADIE**, UC DAVIS; **DAN YPARRAGUIRRE, SHAUN OLDENBURGER, AND MELANIE WEAVER**, CALIFORNIA DEPARTMENT OF FISH AND GAME; **DR. CRAIG ELY AND DR. JOE FLESKES**, US GEOLOGICAL SURVEY

Those of us who have been around California during the last three decades have witnessed many changes to the environment. Changing agricultural practices and wildlife habitat conservation programs have greatly altered the landscape in which we pursue our hunting passion. Have you ever wondered how all of these landscape changes affect the waterfowl we hunt?

Well, waterfowl researchers and managers think about this all the time. In the last 30 years, researchers have

conducted several studies to evaluate impacts of the changing environment and their management efforts on waterfowl ecology in California. One important aspect of ecology is body condition, or the amount of fat a particular bird is carrying. Understanding changes in body condition in California is important, because it directly reflects habitat quality of our staging and wintering grounds. Condition also impacts survival and productivity on the breeding grounds. When waterfowl arrive on the breeding grounds, some species use fat acquired

solely from the staging or wintering areas to breed. Bottom line: fatter ducks and geese mean more ducks and geese.

Starting in 2009 we undertook a study to determine the impacts of habitat changes and management programs on the ecology of greater white-fronted geese. Fortunately, similar research conducted 30 years ago provided a base of information for comparison. We replicated methods of this earlier study conducted by Dr. Craig Ely and Dr. Dennis Raveling at UC Davis. We collected 465 white-fronts for body condition analysis during the fall, winter, and spring of 2009–10 and 2010–11. Our study concentrated on the population of white-fronts that nest in the Yukon Delta of Alaska, referred to as “Pacifics” to differentiate them from the larger “tule” white-fronts. Pacifics comprise the vast majority of white-fronts that winter in California. We collected geese in the Klamath Basin and the Sacramento Valley with a number of objectives: 1) to examine the change in body condition over time; 2) to examine the differences in body condition between the Sacramento Valley and Klamath Basin; and 3) to examine changes in habitat that could explain changes in goose distribution.

What do we mean by changes in goose distribution? Well, if you've hunted in the Klamath Basin since the 1990s you may have noticed fewer white-fronts stopping there in fall. This has been occurring at the same time the Pacific white-front population has greatly increased from 73,000 to about 750,000. Up until the mid-1980s, managers assumed that nearly all of the Pacific white-front population used the Klamath Basin as a fall stopover prior to migrating to the Central Valley wintering grounds. When the Pacific population crashed in the 1970s, a special survey was implemented to aid managers in obtaining accurate population estimates. According to that survey, almost all Pacifics stopped in the Klamath Basin during fall in the 1970s; however, by the early 1990s this was no longer true. Surveys revealed that the majority of the population now bypasses the Klamath Basin in fall and arrives in the Sacramento Valley by October (see graph).

Our research shows that during October, Klamath Basin birds were fatter in 1980 than in both 2009 and 2010. Birds were similar in the Klamath Basin and



>> Ninety-five percent of the Pacific white-front population will use the Klamath Basin area in spring to build up fat reserves prior to migration. Pacifics feed almost nonstop starting in April and will double their body fat prior to the 2,800-mile flight to Alaska. | PHOTO BY PHIL ROBERTSON

Up until the mid-1980s, managers assumed that nearly all of the Pacific white-front population used the Klamath Basin as a fall stopover prior to migrating to the Central Valley wintering grounds.

Sacramento Valley during 2009 and fatter in the Klamath Basin during October 2010. Why are geese in Klamath Basin now less fat than in 1980? Pacifics are very dependent in fall on cereal grain to replace fat reserves depleted during their migration from Alaska. Since 1979 cereal grain planting has decreased significantly in the Klamath Basin, falling from 83,000 acres to 39,000 acres. In contrast, rice planting in the Sacramento Valley has increased by 16 percent in the past 30 years, and post-harvest decomposition flooding has increased the amount of flooded rice from 60,000 acres to 200,000 acres. Additionally, the expansion and enhancement of refuge properties, both public and private, thanks to the North American Wetland Conservation Act and its conservation partners (e.g., US Fish and Wildlife Service, California Department of Fish and Game, and California Waterfowl), has increased the amount of natural wetlands by 70,000 acres. This increase in wetland habitat has created ample undisturbed roost sites, which reduces the distance geese have to fly to find food, saving energy. Overall, the combination of decreasing grain in the Klamath Basin and increasing rice and wetlands in the Sacramento Valley has probably contributed to the shift in October distribution of the Pacific population.

The majority of Pacifics are in the Sacramento Valley in the winter (October-February). Currently, body condition of geese in the winter is similar to that of geese collected in 1980. Body condition decreases from January to February due to a switch in diet from seeds to grass. Grass is more abundant and easier to find than seeds by February but contains less fat than seeds.

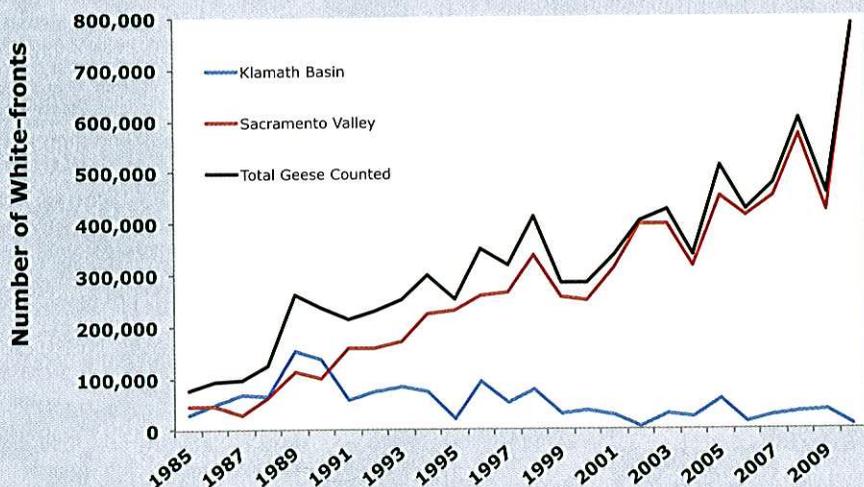
Historically, most Pacifics migrated to the Klamath Basin in mid-March. However, survey data indicates that geese are now arriving in the Klamath Basin earlier, sometime around late February. This probably isn't a bad thing, because early migrants are typically fatter birds. Our body condition data supports this idea, because geese in 2009 and 2010 were fatter in the Klamath Basin in February. Interestingly, based on our March collections, conditions of birds in the Klamath Basin declined compared to birds in the Sacramento Valley. This could be due to harsher weather conditions in the Klamath Basin or the arrival of food resource competitors, such as Ross's and snow geese. At present, the condition of geese in March is similar to that of 1980.

Pacifics double their body fat prior to the 2,800-mile flight to Alaska. Body condition during 1980, 2009, and 2010 was the same suggesting that late-spring food availability is similar now to that of 30 years ago in the Klamath Basin. Anecdotal accounts of more white-fronts staying in the Sacramento Valley during spring are not due to a higher proportion staying over; rather, it is most likely due to the tenfold population increase in the past 30 years. Given the population increase combined with the favorable body condition information, it is apparent that white-fronts have adapted well to the habitat changes that have occurred. In conclusion, harvest management and habitat conservation programs have resulted in a healthy and thriving population of Pacific greater white-fronted geese.

The Klamath Basin is the most important area for Pacifics during spring. Ninety-five percent of the population will use this area to build up fat reserves prior to migration. This means geese need adequate food resources during this time. Geese feed almost nonstop starting around the second week of April. During April,

>> The majority of the Pacific white-fronted goose population bypasses the Klamath Basin as a fall stopover point and arrives in the Sacramento Valley by October. | GRAPH PROVIDED BY DAN SKALOS

Fall Coordinated White-front Survey



FEATURED ON:
"BERETTA'S BIRD
HUNTER'S JOURNAL"



HUNT North Platte River WATERFOWL

WINEMAKER'S ISLAND
A RARE HUNTING
OPPORTUNITY

Be sure to secure your reservation to shoot this prime duck and goose retreat with six miles of private river frontage

Hunting from North Platte River Blinds on an island encircled by cornfields you will experience phenomenal shooting over decoys at reasonable ranges on

Sam Sebastiani's
2,300 acre
Waterfowl Wonderland



For Details
308-665-1741
WWW.WINEMAKERSISLAND.COM