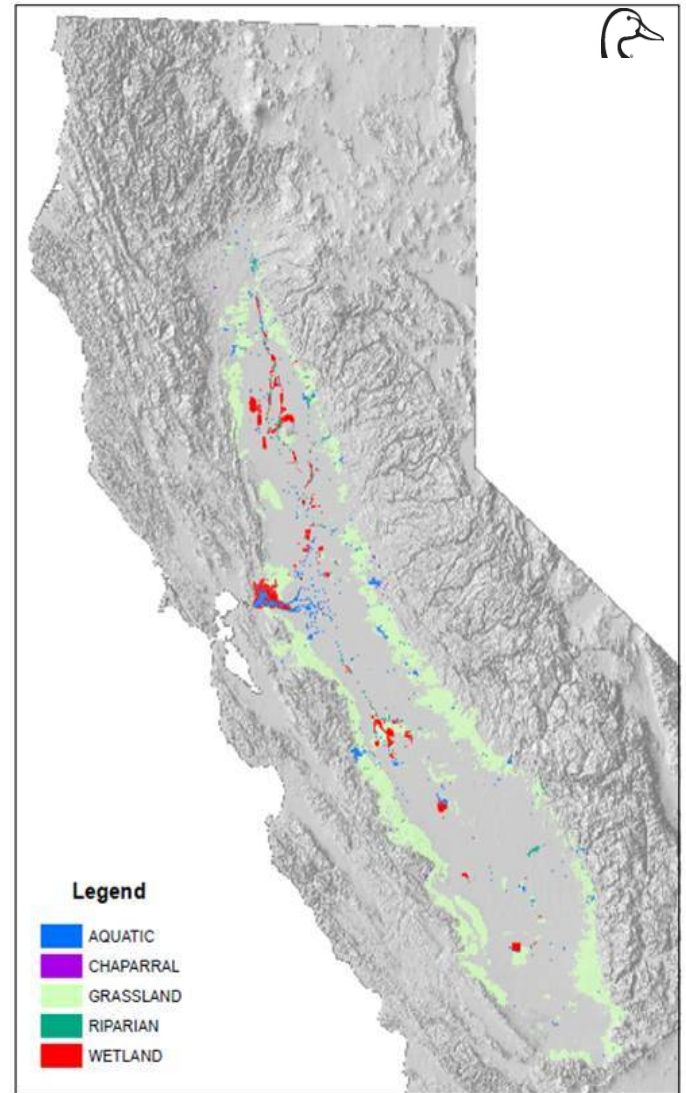
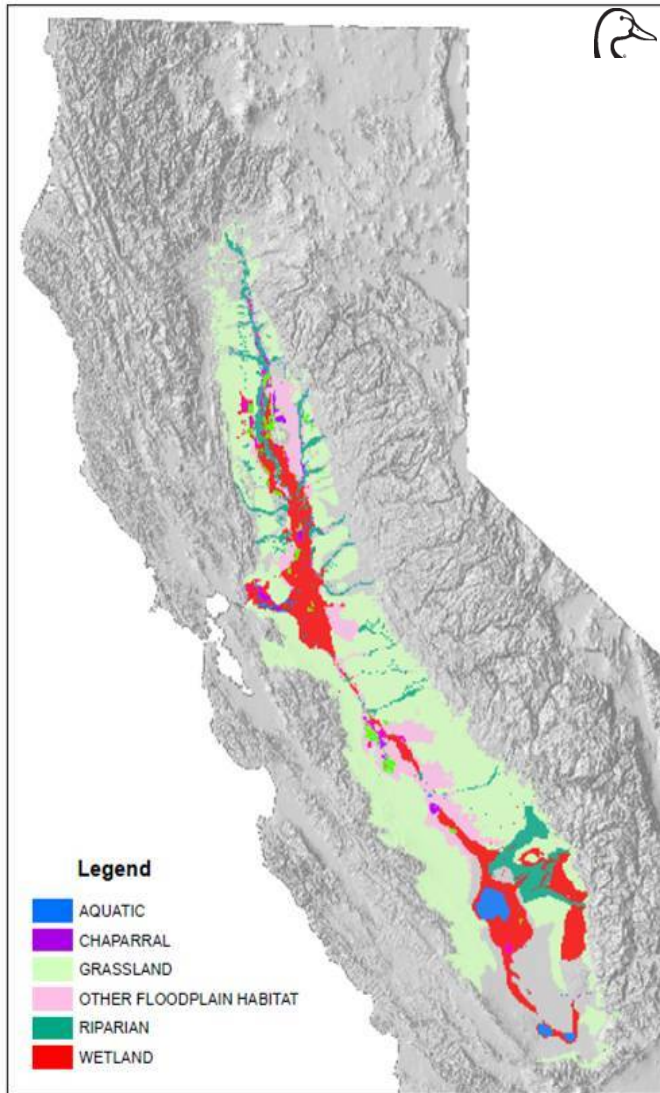


# Dr. Mark Petrie

## Director of Conservation, Ducks Unlimited



# Wetland Losses in the Central Valley



Data Sources: Central Valley Historic Mapping Project, GIC, Chico State; Modern Wetlands, Ducks Unlimited & Central Valley Joint Venture  
 Map Design: Ducks Unlimited, Western Regional Office

# History of Protections for Central Valley Wetlands

1986 North American Waterfowl  
Management Plan

→ 1989 Report on Water Supply  
Investigations

→ 1990 Central Valley Joint Venture  
Implementation Plan

→ 1992 Central Valley Project  
Improvement Act (CVPIA)



# CVP Water Uses on Refuges

- Irrigation of moist-soil plants
- Food production



- Flooded habitat



- Decreased avian crowding



# Wildlife Benefits of Refuge Water Use

- Improved energetics



- Decrease in disease



- Increase in survival



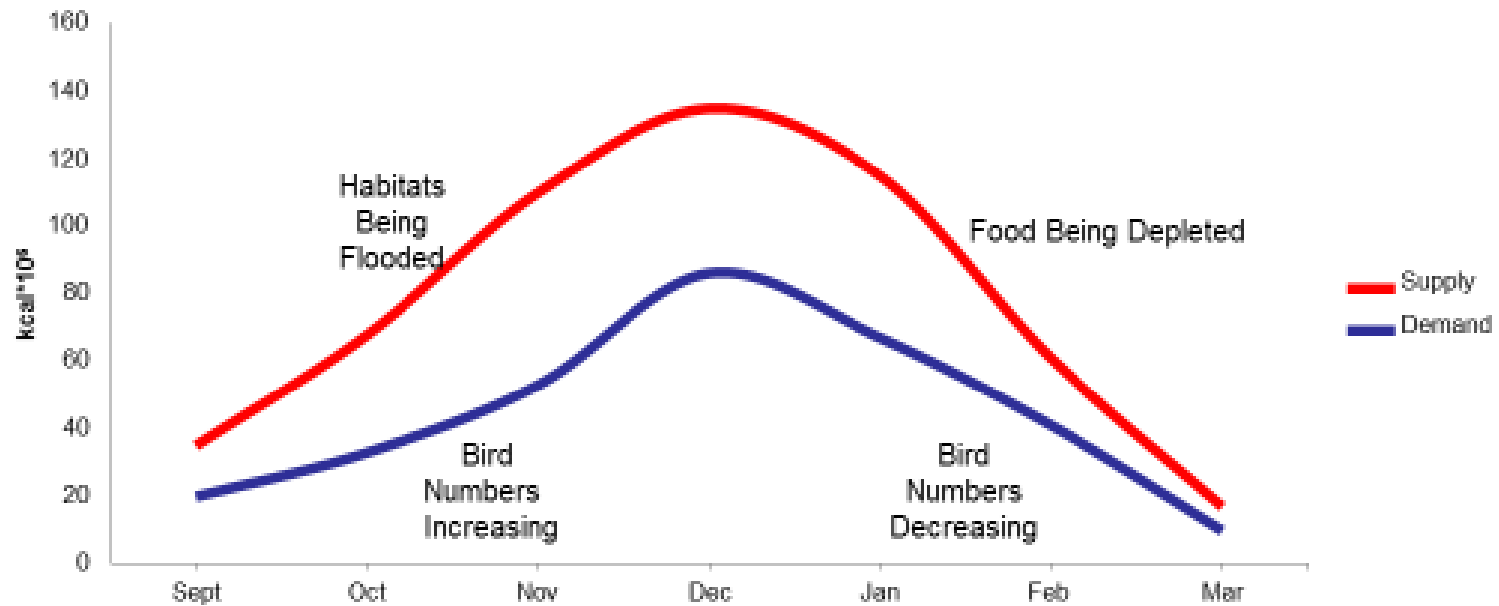
- Increased/stable populations



# CVPIA Refuges Support the Pacific Flyway

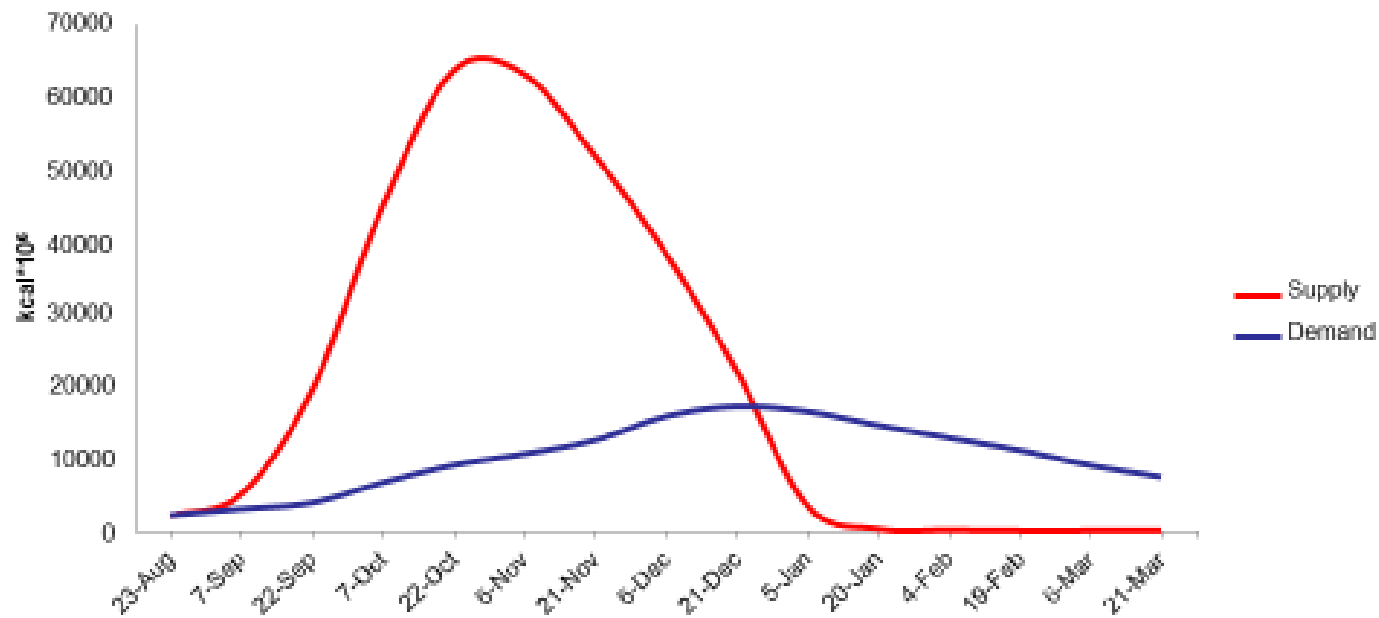


# Food Supply vs. Food Demand



# Food Supply vs. Food Demand

## 2015 Drought





# Potential Impacts of WaterFix Project

- Habitat decline → decreased or unstable avian populations
- Reduced plant production → diminished avian energetics and body condition
- Reduced food supply and flooded habitat → decreased survival and mating rates
- Increased avian crowding → increased instances of fatal avian disease outbreaks

# Avian Species at Risk if Refuge Water Supplies Are Deprioritized

- White-faced Ibis
- Sandhill Crane
- Black-necked Stilt
- Peregrine Falcon
- Loggerhead Shrike
- Tri-colored Blackbird

