

**Derivation of Waterfowl Population Targets
for the
West Gulf Coastal Plain Bird Conservation Region**

Step 1. We restricted the analysis to eight species of dabbling ducks and five species of diving ducks (Table 1) that are abundant in the West Gulf Coastal Plain during winter. Population targets were calculated separately for these two groups of species, as well as for Wood Ducks (see Step 5).

Step 2. The next step was to determine the proportion of dabblers and divers counted during winter surveys (Mid-Winter Inventory, 1970-79) in each WGCP state to the total number of dabbling ducks or diving ducks counted in the 48 contiguous states. (*note: will modify this to include birds wintering in Mexico*).

Step 3. Calculate the proportion of dabbling ducks and diving ducks harvested by hunters in WGCP counties of each state to the total number of dabbling or diving ducks harvested throughout the state.

Step 4. Calculate population targets for dabbling and diving ducks for each state:

$$\text{Target}_{\text{state}} = P_{\text{state}} * P_{\text{WGCPstate}} * \text{Goal}_{\text{continental}}$$

where P_{state} is the proportion of ducks in each species group counted during winter inventories in each state (Step 2), $P_{\text{WGCPstate}}$ is the proportion of ducks in each species group harvested by hunters in the WGCP portion of each state (Step 3) and $\text{Goal}_{\text{continental}}$ is the corresponding continental breeding population goal from Table 1.

Step 5. Calculate state population targets for the Wood Duck. Population targets were calculated differently for Wood Ducks because they are difficult to observe in their forested wetland habitats and thus are not counted accurately in most surveys. Thus we calculated an indirect population estimate by dividing the average number of Wood Ducks harvested by hunters in each WGCP state by an estimated harvest rate of 0.10 (see Reinecke and Loesch 1996 for more details).

Step 6. To generate an all duck population target, we summed the population targets for dabbling ducks, diving ducks, and wood ducks.

Step 7. To generate duck-use day habitat objectives, we first increased the breeding population goal by 15% to account for winter mortality. That is, our objective is to return the same number of ducks that we receive from the breeding grounds back to the breeding grounds in good physical shape. Secondly, we multiplied the adjusted population target by 110, the average number of days ducks are assumed to be present in the WGCP during winter (e.g., mid-November to mid-February).

Table 1. Continental goals for populations of selected species are from Table 1 in the North American Waterfowl Management Plan - 1998 Update and reflect the average abundance during the 1970-79 time period.

Species	Breeding Population Goal
Dabbling Ducks	
Mallard	11,000,000
Northern Pintail	7,000,000
American Black Duck	1,400,000
Mottled Duck	480,000
Gadwall	2,000,000
American Wigeon	3,500,000
Green-winged Teal	3,000,000
Northern Shoveler	2,000,000
Total	30,380,000
Diving Ducks	
Redhead	900,000
Canvasback	600,000
Scaup (Greater and Lesser)	8,000,000
Ring-necked Duck	1,000,000
Bufflehead	1,000,000
Total	11,500,000
Wood Duck	3,000,000

Table 2. Abundance estimates of all ducks, dabblers, and divers from mid-winter inventory data, Lower Mississippi Valley Joint Venture states.

State	State-level estimates			US-wide estimates			Percent (%) US estimate by state		
	All Ducks	Dabblers	Divers	All Ducks	Dabblers	Divers	All Ducks	Dabblers	Divers
AR	1044010	1026670	17340	20066928	17723307	2343621	5.20	5.79	0.74
LA	3980000	3209020	770980	20066928	17723307	2343621	19.84	18.11	32.90
OK	272978	270678	2300.6	20066928	17723307	2343621	1.36	1.53	0.10
TX	3076266	2627411	48855	20066928	17723307	2343621	15.33	14.82	19.15

Table 3. Harvest estimates of all ducks, dabblers, divers, and wood ducks within states and counties of the West Gulf Coastal Plain.

State	State-level estimates			WGCP counties within states				Percent (%) state estimate in WGCP counties		
	All Ducks	Dabblers	Divers	All Ducks	Dabblers	Divers	Wood Duck	All Ducks	Dabblers	Divers
AR	596621	576539	20082	88115	84766	3349	13105	14.77	14.70	16.68
LA	1250783	1092201	158582	110674	80198	30476	45753	8.85	7.34	19.22
OK	188622	167006	21616	44830	43024	1806	3156	23.77	25.76	8.36
TX	902049	814817	87232	86254	76107	10147	18800	9.56	9.34	11.63

Table 4. Population and habitat (DED) objectives for ducks, dabblers, divers, and wood ducks within states of the West Gulf Coastal Plain.

State	Population Goals				Habitat Goals (DEDs)		
	Dabblers	Divers	Wood Duck	All Ducks	Dabblers	Divers	All Ducks
AR	297553	16318	131050	444921	32730859	1794974	48941333
LA	464488	836095	457530	1758112	51093649	91970420	193392370
OK	137459	1085	31560	170103	15120439	119312	18711351
TX	483764	294629	188000	966393	53214026	32409243	483764