

Wading Bird Abundance (Foraging and Nesting) Everglades National Park Area

Methods: Systematic reconnaissance flights (SRF) were performed monthly between December 2001 and May 2002. Flights were done over 3 consecutive days using a fixed-wing Cessna 182 at an altitude of 60 m. The area covered included the Everglades National Park and the southern region of Big Cypress National Preserve (transects 55 to 90). These transects were oriented E to W and separated by 2Km. Wading birds were counted, identified and geographically located using GPS units. Changes in surface water patterns (hydropatterns) were also recorded. Five categories were used to describe the hydropatterns: DD - absence of surface water and no groundwater visible in solution holes or ponds; WD - absence of surface water but groundwater present in solution holes or ponds; DT - ground surface area mostly dry but small scattered pools of surface water present and groundwater visible in solution holes or ponds; WT - ground surface area mostly wet but small scattered dry areas; and WW - continuous surface water over the area.

Data obtained during each SRF were compiled into a database that contains the information collected since 1985 to the 2002 season. During this period of time, SRF surveys were not conducted for the months of December 1984, December 1987 and January 1998. The average total number of wading birds during the months of December with SRF data was used to estimate the missing data for these particular months. The same procedure was applied for the January's missing data.

Densities of birds were estimated using a 2X2 Km grid. The number of birds counted during the SRF inside the 300m stripe width were extrapolated to the rest of the 4Km² cell dividing the number of birds observed by 0.15.

Results: This year a 15% decrease in the estimated number of wading birds compared to the previous year was observed. However, the overall trend since 1985 to the present showed an increase in the number of birds (Figure 1). This year most of the species show a decrease in the number of individuals in comparison with the 2001 survey. Great egrets (GREG) decline 27%, great blue herons (GBHE) 20%, small dark herons (SMDH) 3%, white ibis (WHIB) 9%, glossy ibis (GLIB) 37%, wood stork (WOST) 27% and roseate spoonbill (ROSP) 8%. The only species that showed an increase in the number of birds were small white heron (SMWH) with an increment of 36% and great white heron (GWHE) with 27%.

The peak density of birds occurred during the month of February (Table 1). During this month, five of the nine species studied showed the maximum number of birds for the all season, including those species that encompassed the largest number of individuals such as GREG and WHIB. Other species such as SMWH and ROSP were more abundant in March, while GBHE was in January and GLIB was in April.

This year the lack of normal rainfall produced unusual low water levels that altered the distribution and abundance of wading birds. SS was the basin where most of the birds were found (26%), followed by SSME and BCME with 15% respectively. These tree basins combined, made up to 57% of the total number of birds observed during the entire season.

In a normal rainfall year, SS has the lowest density of birds during the first three months of the survey due to the high water levels in that basin. However, this year SS had the

largest concentration of birds for all months except December due to the lack of water in the other basins.

Drastic changes in hydropatterns and birds distribution were observed throughout the season. During the month of December, as usual, most of the study area was covered by water; 54% of the area was classified as WW and 31% as WT. Even though more than half of the area was completely flooded, the highest densities of birds occurred in areas with the WT hydropattern. The next two types of hydropatterns with the highest densities were WW and DT respectively. January had a very similar coverage in hydropattern as the previous month (50% WW and 37% WT). However, the highest density of birds occurred at the WW areas rather than WT as in December. As water recedes, it made WW areas more suitable for wading birds to forage in less deep waters.

Despite the sharp decrease in the percentage of land covered by WW and WT observed in February, bird densities were higher in those areas. This pattern continued to May when the area covered by WW and WT represented only 12% and 15% respectively. Despite the reduction in WW and WT area, densities of birds during March and April were predominantly on those areas. During the last month of the survey, the park becomes very dry with DD covering 50% of the total area. At the end of the season, most birds were located in WT and in DT areas with 34% and 33% respectively of the total number of birds.

Mario A. Alvarado and Sonny Bass
Everglades National Park
South Florida Natural Resources Center
40001 State Road 9336
Homestead, FL 33034-6733
Mario_Alvarado@nps.gov
Sonny_Bass@nps.gov

Table 1: Estimated abundance of wading birds in the Everglades National Park and adjacent areas, Dec-2001 to May-2002						
Species	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02
GREG	21,484	18,100	25,807	18,326	9,305	9,849
GBHE	1,611	2,497	1,305	1,544	756	1,048
SMDH	1,023	1,547	4,635	2,951	965	2,738
SMWH	2,880	1,812	3,639	4,782	2,631	2,287
WHIB	19,944	25,563	45,504	33,164	20,956	24,118
GLIB	134	200	216	874	882	73
WOST	962	2,397	3,205	1,643	902	1,461
ROSP	288	261	543	1,162	622	799
GWHE	35	35	166	49	21	14
Total Abundance	48,361	52,412	85,020	64,495	37,040	42,387

Table 2: Estimated abundance of wading birds (all species combined) for the different drainage basins in the Everglades National Park, Dec-2001 to May-2002

Month	SBC	BCME	SS	NESS	ES	SSME	NTS	LPK/S TS	EP	CS	LPK/S TSM	EPME	Total
Dec-00	2,326	17,579	4,123	1,372	2,739	5,320	446	1001	2,619	4,756	4,771	1,309	48,361
Jan-01	4,375	10,003	10,972	1,299	3,369	10,227	462	1,044	3,142	4,797	1,434	1,288	52,412
Feb-01	8,067	7,159	20,385	2,262	13,798	17,436	134	2,638	2,289	5,982	4,183	687	85,020
Mar-01	10,436	8,252	17,863	1,329	8,020	10,731	176	760	1,253	1,694	3,095	886	64,495
Apr-01	3,901	2,537	11,508	1,009	10,716	2,724	14	1,203	369	635	2,303	121	37,040
May-01	2,422	3,637	22,684	1,542	448	4,387	0	3,106	95	608	3,383	75	42,387
Total	31,527	49,167	87,535	8,813	39,090	50,825	1,232	9,752	9,767	18,472	19,169	4,366	329,715

SBC = Southern Big Cypress (South of US 41)

BCME = Big Cypress Mangrove Estuary (South of US 41)

SS = Shark Slough

NESS = Northeast Shark Slough

ES = East Slough

SSME = Shark Slough Mangrove Estuary

NTS = Northern Taylor Slough

LPK/STS = Long Pine Key / South Taylor Slough

EP = Eastern Panhandle

CS = Cape Sable

LPK/STSM = Long Pine Key / South Taylor Slough Mangrove Estuary

EPME = Eastern Panhandle Mangrove Estuary

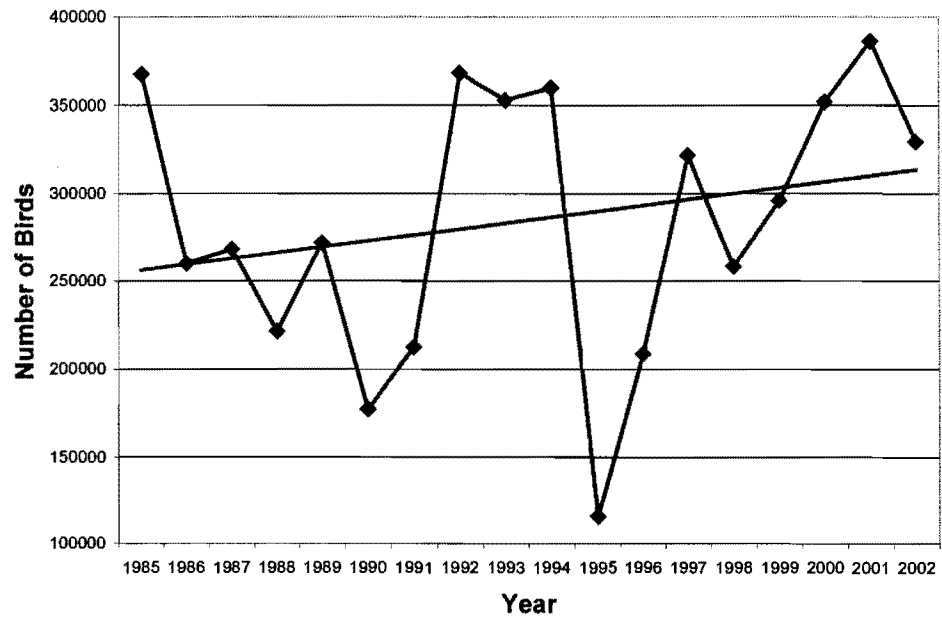


Figure 1: Estimated number of wading birds (all species pooled) observed from the months of December to May 1985-2002

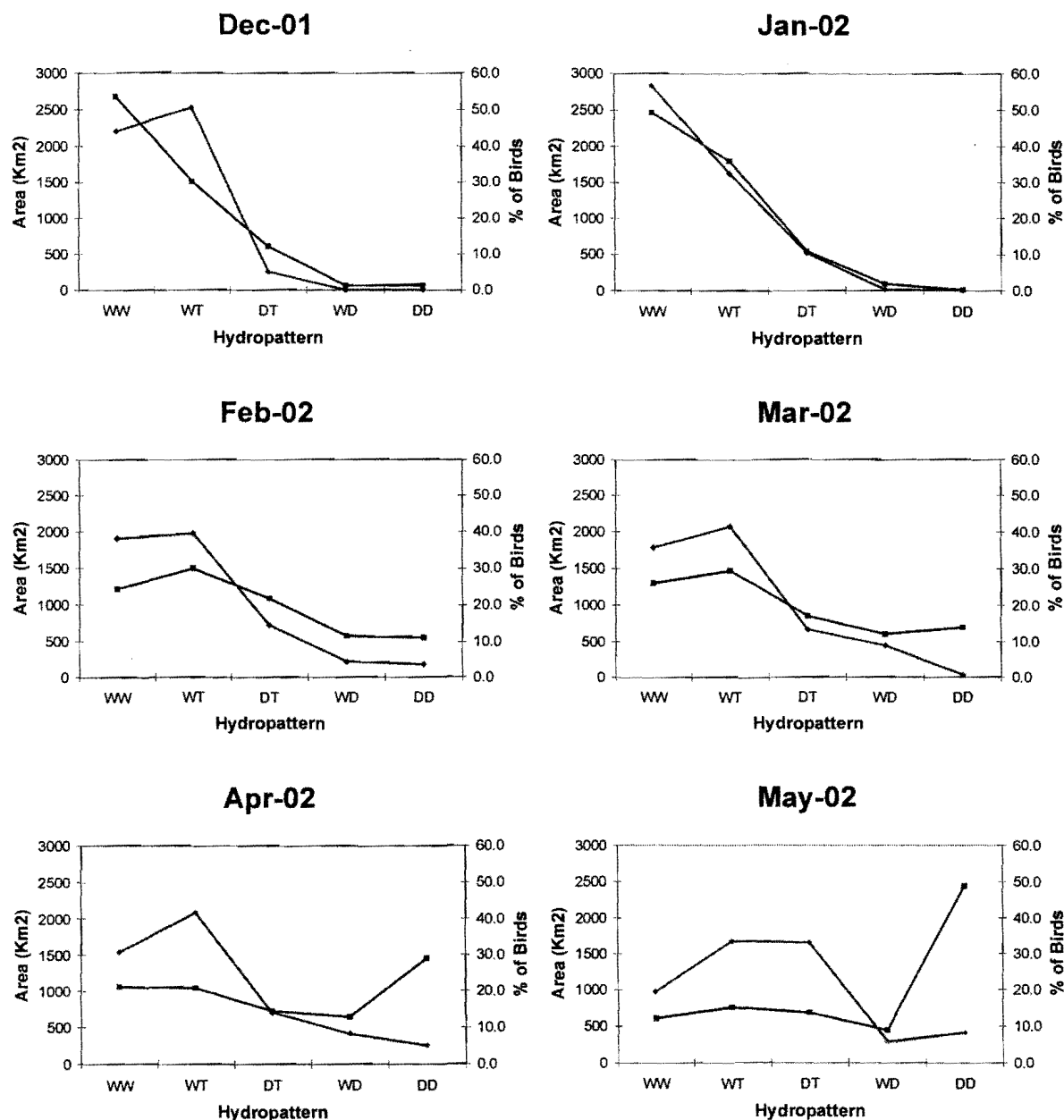


Figure 2: The areal extent and percentage of wading birds (all species pooled) in each surface water category. WW = continuous surface water; WT = mostly wet with scattered dry areas; DT = mostly dry with small scattered pools of water; WD = dry with water only in solution holes; DD = dry.