STILL LIFE: GREAT EGRET RESPONSE TO ENCOUNTERS WITH CONSPECIFIC AND HETEROSPECIFIC BIRDS

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Abstract: Because Great Egrets (*Casmerodius albus*) rely on stealth for foraging success, we hypothesized that they would respond to birds encountered while foraging by an aggressive move, or a retreat to an undisturbed area. Encounters with conspecific individuals consistently elicited an aggressive move or a retreat, in 26 of 28 encounters. But Great Egrets ignored heterospecific birds in 63 of 63 encounters, including species that are potential competitors for food.

Key Words: Casmerodius albus, Great Egret, foraging, competition

INTRODUCTION

The Great Egret (*Casmerodius albus*) is a large, piscivorous bird that relies on stealth to forage successfully. Encounters with heterospecific birds while foraging could interfere with foraging success by disturbing fish. In addition, other Great Egrets and similarly large, piscivorous birds may be perceived as direct competitors for food. Therefore, we predicted that (1) Great Egrets would respond to conspecific bird encounters by an aggressive move towards the arriving individual or retreat to an undisturbed foraging area, and (2) Great Egrets would respond to other large, piscivorous birds (Wood Storks, Snowy Egrets, Cormorants) as they do to conspecifics.

METHODS

We observed Great Egrets from the observation bridge overlooking the marsh at the OTS field station in Palo Verde National Park, Costa Rica, on 12-13 January 2006. We compiled our observations from 0545-0645, 0745-0845, and 1700-1800 on both days, a total of 12 person-hours. We observed 47 individuals, watching two Great Egrets for a maximum of an hour, choosing a new Great Egret if one flew out of sight. We recorded Great Egret response whenever there was an encounter with a bird and recorded the species and abundance (number) of the encountered birds. Encountered birds were defined as birds that entered within a 5 m radius of the Great Egret, birds that were present within 5 m of the Great Egret when it landed, and birds that flew within 5 m of the Great Egret (flybys). We recorded 4 types of Great Egret response: (1) ignoring, which meant no difference in the Great Egret's foraging behavior; (2) aggressive move, which meant the Great Egret made an antagonistic approach towards the bird(s) within the

5 m radius; (3) walking away, and (4) flying away. The 5 m radius was estimated based on the body length of the Great Egret.

RESULTS

We observed 91 bird encounters, including 15 flybys. In all 63 observations of heterospecific bird encounters, Great Egrets ignored the encountered bird(s), regardless of species or number (Table 1). Furthermore, Great Egrets ignored encounters with similarly large, piscivorous birds, as they did other heterospecifics (Table 1). However, in 26 of 28 conspecific encounters, Great Egrets responded (Table 2). The most common Great Egret response to a conspecific encounter was to fly away (13 of the 28 arrivals). The Great Egret responded to all 7 conspecific flybys by flying away.

DISCUSSION

Our finding that Great Egrets ignored all encounters with heterospecific birds suggests that the energy cost of flying to a new foraging area in response to heterospecific bird encounters (and the resulting disturbance of fish) outweighs the cost of foraging in a disturbed area. In addition, the result that Great Egrets ignore other large, piscivorous birds while foraging suggests that Great Egrets do not identify those birds as direct competitors, perhaps because they do not overlap in resource or habitat use.

TABLE 1. Heterospecific bird encounters ignored by Great Egrets at Palo Verde National Park, Costa Rica. Values indicate encounters ignored by the Great Egret out of total encounters observed. N/A indicates no observations. Great Egrets foraging behavior does not appear to be influenced by heterospecific encounters.

Arrival species	Single bird encounters, excluding flybys	Multiple bird encounters, excluding flybys	Flybys
Cormorant*	3 of 3	N/A	2 of 2
Wood Stork*	1 of 1	N/A	1 of 1
Snowy Egret*	1 of 1	3 of 3	2 of 2
White Ibis	N/A	2 of 2	N/A
Cattle Egret	1 of 1	1 of 1	1 of 1
Snail Kite	1 of 1	N/A	N/A
Northern Jicana	12 of 12	10 of 10	1 of 1
Whistling Duck	2 of 2	18 of 18	1 of 1
Total	21 of 21	34 of 34	8 of 8

* indicates large, piscivorous bird species

TABLE 2. Great Egret responses to conspecific encounters at Palo Verde National Park, Costa Rica. Great Egrets consistently respond to encounters with conspecifics, including flybys, often by retreat.

Response	Conspecific encounters, excluding flybys	Conspecific flybys
Ignore	2	0
Aggressive move	7	0
Walk away	4	0
Fly away	8	7
Total	21	7

The Great Egret's consistent response to conspecific encounters suggests that Great Egrets may recognize conspecifics as direct competitors. Most responses to conspecific encounters were to walk or fly away (22 of 28), suggesting that an intruding Great Egret is often successful in forcing the resident Great Egret out of a foraging area. However, the observation that Great Egrets flew away in response to all conspecific flybys, which do not represent an immediate threat of competition for food, may suggest that conspecific responses are not predicated upon competition for food.