

Effects of Competitor Species on Black-Crowned Night Heron Activity at Different Times of Day

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Introduction

Black-crowned night herons (*Nycticorax nycticorax*) (Fig.1) share a niche with various competitor species, thus influencing their behavior accordingly. There has been discussion that black-crowned night herons nocturnal behavior, of being mainly active and hunting during dusk and dawn, is due to the decreased presence of competitor species like the Snowy Egret (*Egretta thula*), Great Egret (*Ardea alba*), and Great Blue heron (*Ardea herodias*) (Fig.2).

Predictions

- Black-crowned night herons will be more active when there is a decreased presence of competitor species.
- The number of black-crowned night herons will increase as presence of competitor species decreases.
- Midday will have more black-crowned night heron activity, when there are less competitors present.



Fig. 2 Competitor species of Interest named from left to right: Snowy Egret (*Egretta thula*), Great Egret (*Ardea alba*), Great Blue heron (*Ardea herodias*).

Methods

- 4 sites visited (Fig.3) at 3 different times of day
- 3 observational time periods: Dawn, (1 hour before and after sunrise) Midday (1 hour before and after noon), Dusk (1 hour before and after sunset).
- Initial counts of Black-crowned night herons and competitor species present
- 3 consecutive scan samplings of BCNH behaviors
- Low Activity: Sleep, Preen, Vigilance
- High Activity: Hunting/Foraging, Fly, Vocal, Aggression

Results

Total black-crowned night herons observed were highest at midday (Fig.4). Total competitor species present was highest at midday (Fig.5). Activity level was highest at Dawn and Dusk, and lowest at midday (Fig. 6).

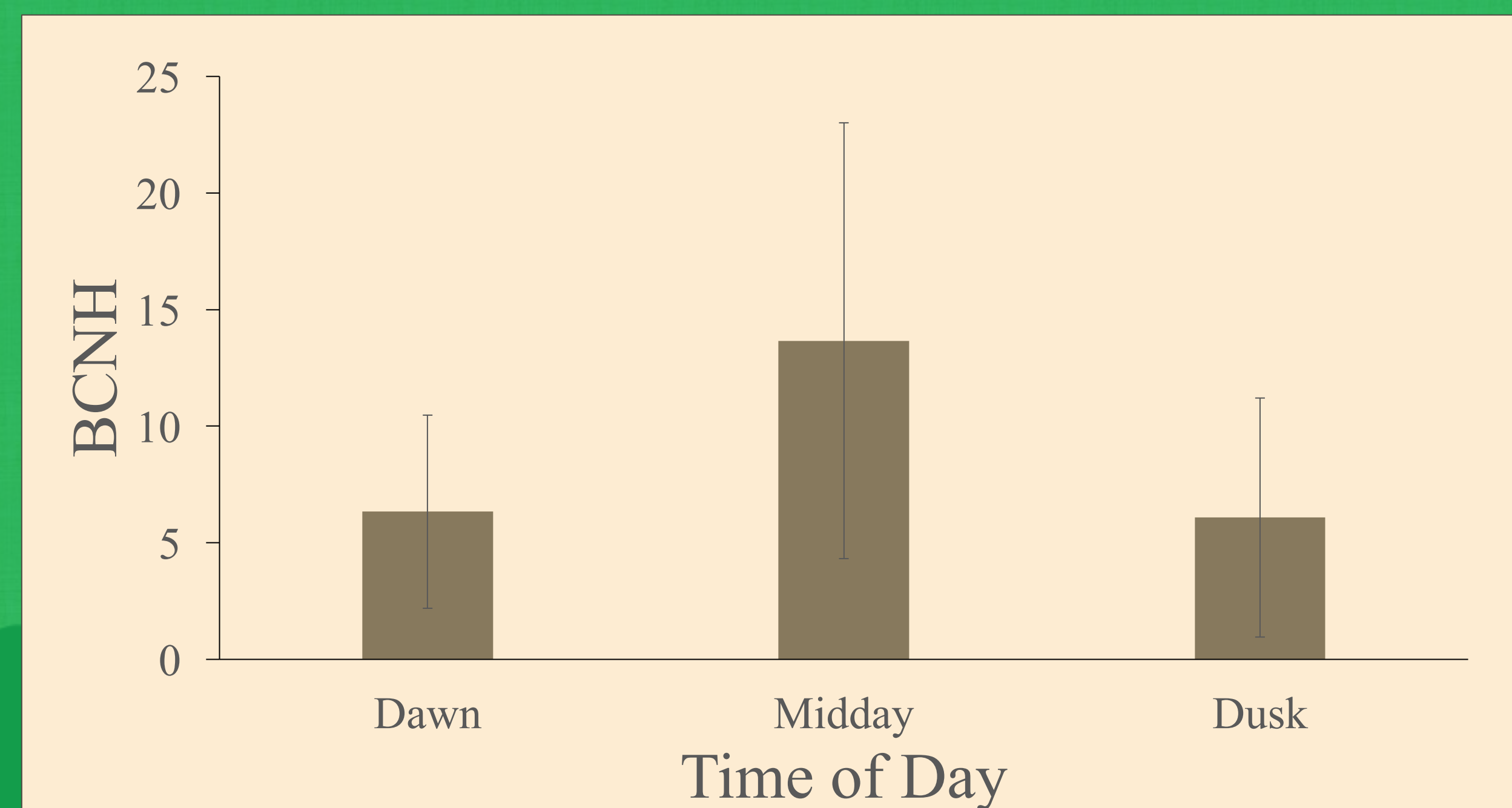


Fig.4 Average number of observed black-crowned night herons at different times of day.

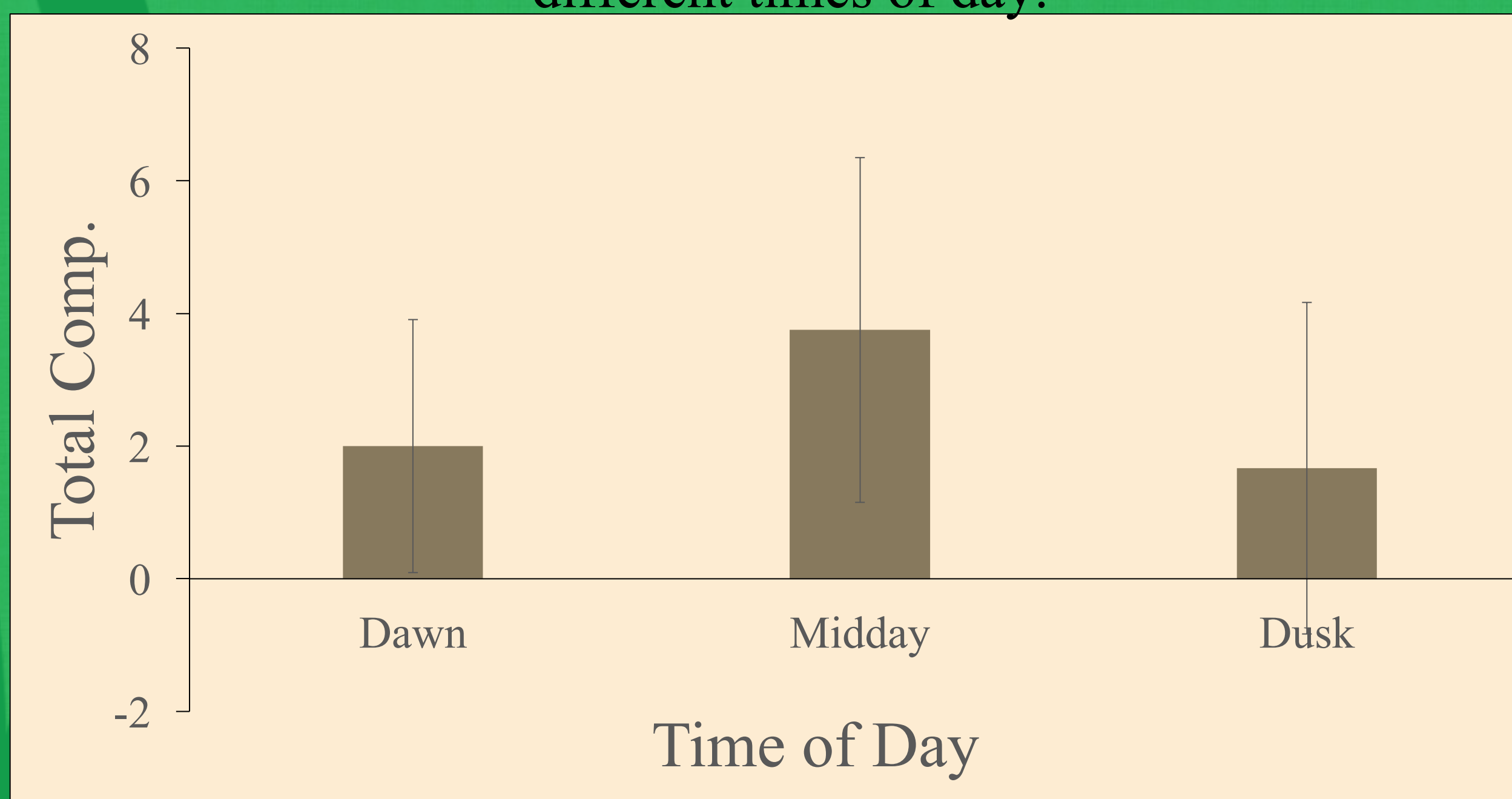


Fig.5 Average number of observed total competitor species during different times of day.

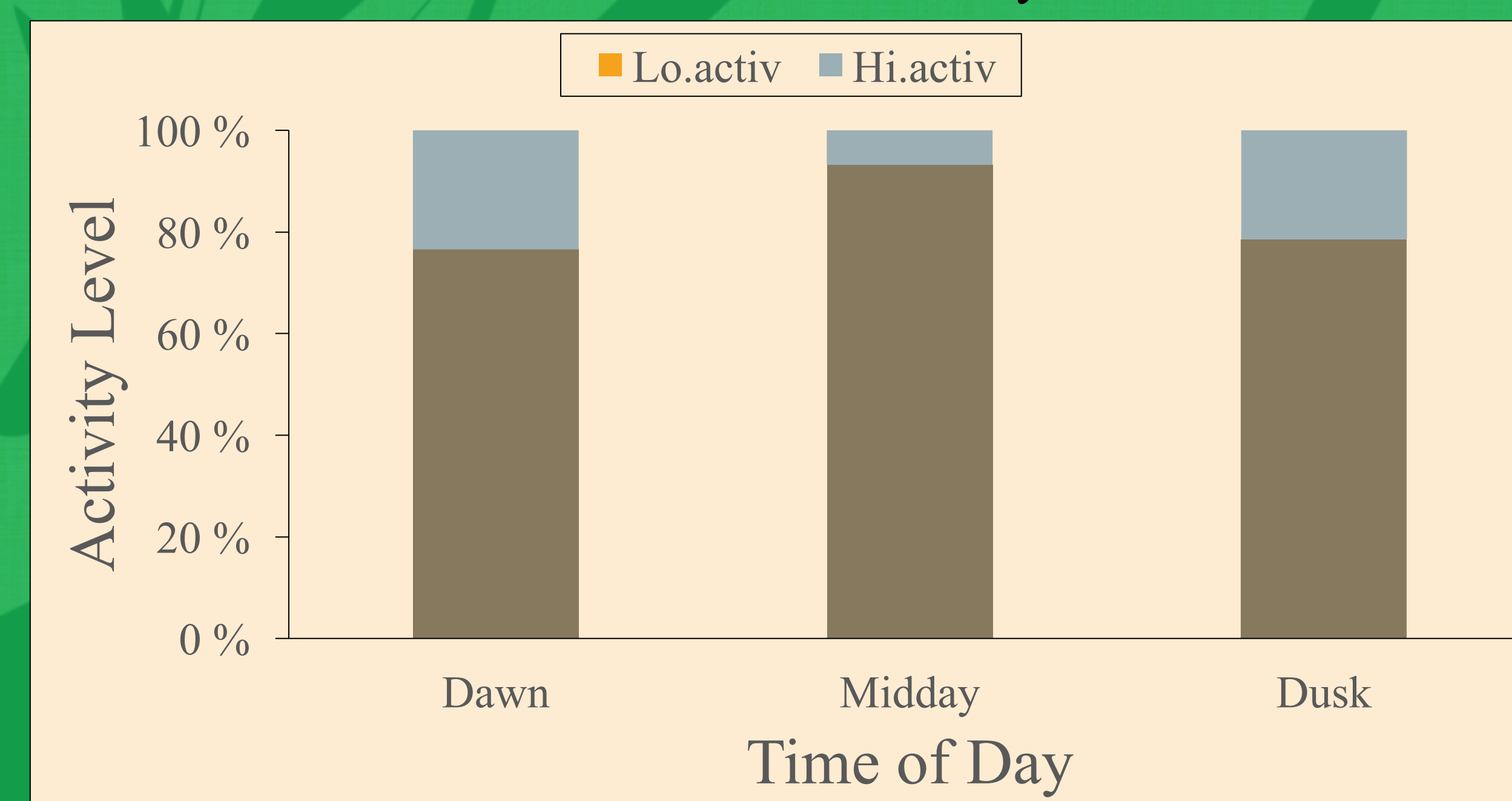


Fig.6 Average percent of low and high activity observed in Black-crowned night herons at different times of day.



Fig.1 Species of interest: Black-crowned night heron (*Nycticorax nycticorax*)

Discussion

Although black-crowned night herons were more active during dawn and dusk when there were less competitor species present, they were most abundant in midday, when the number of competitor species present was highest. This suggests that presence of competitor species is negatively correlated with black-crowned night heron activity level, yet positively correlated with presence of black-crowned night herons.



Fig.3 Study site locations: Klopp Lake and Allen Marsh located in The Arcata Marsh, Tuluwat Island and Woodley Island located within the SW portion of Humboldt Bay.

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