Human disturbance affecting foraging of Great Egrets (Ardea alba)

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Abstract

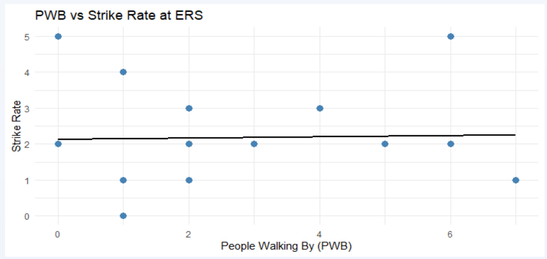
- Human disturbance can influence how wading birds forage in wetlands with frequent people and dogs.
- Great Egrets (Ardea alba)often feed near public paths in Humboldt Bay, making them ideal for studying disturbance effects.
- This study compared strike rates under two disturbance types: people walking by and people with dogs.
- Results help managers balance public access with wildlife needs in busy wetland areas.

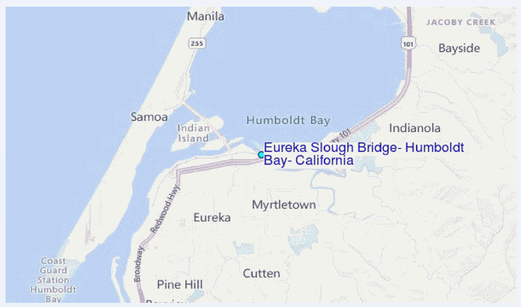
Introduction

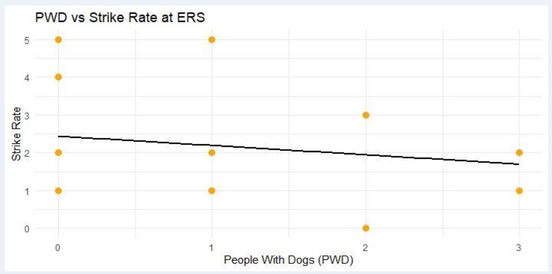
- Human disturbance can interrupt feeding and increase vigilance, lowering energy intake in birds.
- Great Egrets are sensitive because they forage in open wetlands easily accessed by people and dogs.
- Disturbance may cause pauses in feeding and reduce foraging efficiency.
- Study sites: Butcher's Slough and Elk River Slough, Humboldt Bay.
- Objective: test if human presence reduces Great Egret foraging efficiency.
- Prediction: strike rates highest with no people, lower with people, lowest with dogs.

Methods

- Observed Great Egrets at Butcher's and Elk River Sloughs during daytime low tides (0–2 ft).
- Alternated sites to balance sampling effort.
- Watched egrets 5–20 m away for 10 min using binoculars.
- Recorded strikes per minute and noted people or dogs within 5–20 m.
- Estimated distances with a mapping app.
- Sampled 20 Feb–10 Apr, morning and afternoon low tides.
- Compared strike rates across disturbance types and sites.

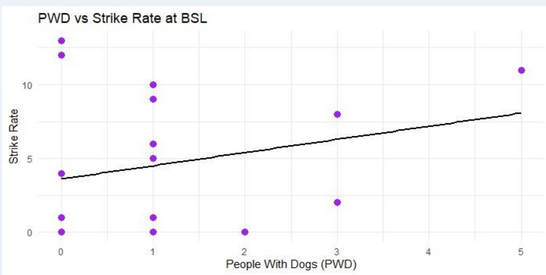






Results

- Strike rates were moderately and positively correlated with people walking by ($\rho = 0.45$, $p = 0.003$).
- Weak, non-significant correlation with people with dogs($\rho = 0.25$, $p = 0.12$).
- Mean strike rate and PWB were higher at Butcher's Slough (4.31 strikes/min; PWB = 4.69)than at Elk River Slough(2.53 strikes/min; PWB = 3.33).
- Dog presence was similar between sites(BSL = 1.06; ERS = 1.27).
- Overall, higher pedestrian activity was associated with greater strike rates.



Discussion

- Human disturbance did not reduce Great Egret foraging efficiency.
- Strike rates were higher with more people; dogs had no significant effect.
- Likely due to habituation — egrets are used to regular pedestrian activity near trails.
- Butcher's Slough showed higher strike rates and traffic, supporting habituation or site differences.
- Pedestrians may indirectly increase prey visibility, keeping feeding uninterrupted.
- Dog encounters were few and mostly leashed, limiting disturbance.
- Limitations: broad disturbance categories, no prey data, possible repeat birds, daytime sampling only.
- Future work should measure prey capture and finer disturbance details.

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