Corina Logan's University of Cambridge Application Materials (applied October 2007)

RESEARCH PROPOSAL

There is growing evidence that corvids recognize individuals and know something about the intentions of others depending on who the individual is and their past experiences (or lack of them) (Dally et al. 2006, Clayton et al. 2007). Studies to date consist of observational data from the laboratory. This project provides direct, physiological evidence that could confirm these hypotheses, thus increasing our awareness of cognitive levels in non-primate species (Emery and Clayton 2004).

Hypothesis #1: Western scrub jays (*Aphelocoma californica*), rooks (*Corvus frugilegus*), and Eurasian jays (*Garrulus glandarius*) experience more physiological stress when caching in the presence of dominant and subordinate individuals than when caching in private or in the presence of a mate or affiliative partner.

- **Prediction:** Heart rate will increase when caching in the presence of dominant or subordinate individuals compared with caching in private or when the observer is a mate or affiliative partner.

Western scrub jays are known to recache food more often after having cached that food in the presence of a dominant or subordinate bird compared with when the food was cached in private or in the presence of a partner (Dally et al. 2006). This suggests that individuals know who their competitors are and when their caches are at risk of pilferage, which could indicate higher levels of stress under these circumstances. There is some evidence that Eurasian jays recache after caching in the presence of others (Goodwin 1956), while the rooks have not yet been tested.

(Please see additional materials with Ms. Hugh for full proposal.)

CAREER GOALS AND FUTURE ASPIRATIONS

Acquiring a Ph.D. is not a purely academic goal or just another achievement for my resume. It is a matter of opening doors for me as a researcher; a key to a new dimension of science where I can lead projects and conduct independent investigations. My dedication to conducting cutting edge biological research makes obtaining a Ph.D. the natural next step on the path of carrying out the highest quality research. Additionally, my propensity for multitasking, organizing, and completing projects ahead of schedule attests to my ability to succeed in this field. After graduate school I intend to continue my research on cognition by expanding comparative studies, developing theory aimed at understanding evolutionary causes, and creating empirically testable methods. I plan to pursue this research through post-doctorate appointments, positions at institutes and non-governmental organizations, and professorships. Cambridge University offers a thorough preparation for my career and is an amazing place to realize my goals.

PERSONAL STATEMENT

As a conservationist, I strive to reduce my impact on resources and other species through a variety of daily choices. Living by example is a statement about who I am and might serve as a model for others to realize their own unique goals. These principles not only drive my personal life, but my professional career as well. I would like to apply my behavioral research to conservation and work for the protection of species and habitats. My goal is to share my research by inspiring others as I have been inspired by the many biologists who shared their passions with me.

As a biologist, I have experienced many aspects of research including working independently. When I was an undergraduate, I conducted the first play study on the coati (*Nasua narica*) at La Selva Biological Station in Costa Rica. I tested the theory that play is training for

unexpected events, which the results seemed to support, and collected general descriptive data on coati play habits, which culminated in a manuscript that I am preparing to submit to *Behavioural Processes*.

My diverse background in exercising leadership, working in teams, and communicating with the public has prepared me well for creative innovations in the scientific realm. When I was an AmeriCorps member (a domestic form of the PeaceCorps) my site supervisor was reluctant to hire me over a more mature candidate, but in the end she was glad she chose me. She didn't expect an 18-year-old to have the ability to coordinate and lead a team of teens encouraging other youth to access local health services. Nor, nine years later, was my Washington State Department of Natural Resources supervisor prepared for the ease with which I took over the fieldwork, which included hiring and supervising a research technician, coordinating logistics with regions and contractors, and revising some of the methodology. I have experienced the gamut of functional group work as part of many field crews and undergraduate research projects, as well as during my AmeriCorps term which is where I greatly enhanced my group facilitation skills. Equipped with this background, I am ready to meet my next challenge: the Ph.D.

With kind regards,
Corina