

# Historical data for ecological monitoring and management evaluation, some practical experiences

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**Abstract:** Making use of citizen science and big data has become an important focus for ecological statisticians seeking inferences about the state of the environment. Monitoring change through time presents different problems to broad-scale snapshot and ‘atlas-type’ surveys. The lack of implementation of sensitive and robust monitoring concurrent with management may be redressed in the future, but what of learning from the past? Legacy historical datasets provide unique opportunities for analysts to learn about change and effects of management but analysts cannot change the nature of historical data. Common problems posed by the use of historical data include: observational data that may be subjective and coarse and of little relevance to the process of interest; poor survey design and ‘small data’. In this talk I shall describe real examples using historical data to learn about the effectiveness of ecological management interventions. Within a Bayesian framework and the BUGS/JAGS language some tools we use include the use of latent variables, informative Bayesian priors, double sampling and calibration.

## References

Duncan, D.H. & Vesk, P.A. (2013) Examining change over time in habitat attributes using Bayesian reinterpretation of categorical assessments. *Ecological Applications*, **23**, 1277-1287.