



# Learning from resilience research: Findings from four projects in New Zealand



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## ABSTRACT

This paper interrogates four case studies against a resilience framework developed in the course of a research programme. A resilience framework provided the necessary structure to generalise across the case studies and begin to extract lessons from the research. By utilising the framework it is possible to benchmark resilience traits, measure progress or decline, articulate the need for diversity and the balancing of priorities, and provide a more holistic guide for policy-makers. The four case study projects are presented before a discussion links the main findings from the cases to the resilience framework. By applying a theoretical framework to diverse pieces of work, the paper demonstrates an approach to learning systematically from complex and multi-disciplinary research. In particular, the framework captures how the scope of projects expanded over time to incorporate additional dimensions of resilience. This finding highlights the need for flexibility in multi-disciplinary research projects to allow for the inclusion of dimensions that emerge as important in the course of the research.

## 1. Introduction

Resilience thinking has become significant in terms of addressing complex challenges through multidisciplinary research, in particular for understanding the implications of rapid change and ongoing structural adjustment at various scales (Beilin et al., 2013; Lamine, 2015; Lebel et al., 2006). Community resilience involves the ‘ability of groups of communities to cope with external stresses and disturbances as a result of social, political, and environmental change’ (Adger, 2000 p. 347; Wilson, 2012 p. 17). However, conceptualisations of ‘resilience’ across disciplines can be confusing (Davidson et al., 2016; Tidball et al., 2016). Conceptualisation of ‘community’ can also be fuzzy, but prior work suggests that a focus on spatially explicit regions can be valuable in terms of data acquisition to inform resilience indicators (Robinson and Carson, 2015; Wilson, 2010).

The complex challenges, the multidisciplinary of the research and the fuzzy-yet-useful concepts are all explored in the emerging field of Integration and Implementation Sciences (I2S) (Bammer, 2005, 2008, 2012; Bammer et al., 2005). I2S is working towards bringing structure and common language to complex, multidisciplinary research to help

support learning over time. This paper reports on the creation and use of a framework for interrogating rural community resilience in four related projects in the North Island of New Zealand, in order to provide a theoretical mechanism to understand multidisciplinary work. These case studies include (Fig. 1):

- (1) The Sustainable Land Use Initiative (SLUI) in the Manawatu/Whanganui region.
- (2) The Wairoa community and the informal economy.
- (3) AgInform<sup>®</sup> modelling for sheep and beef farms in Whanganui.
- (4) Waikato Local Indigenous Biodiversity Strategies.

The primary role of the framework was to provide a foundation for an AgResearch (New Zealand Government owned Crown Research Institute) core funded multidisciplinary research programme, *Resilient Rural Communities*, with the mandate to increase the resilience of pastoral farms and farming communities. The resilience framework was developed as an outgrowth of the four research programme case study projects and related conceptual research, in order to provide some structure for discussions of social, economic, institutional, cultural and

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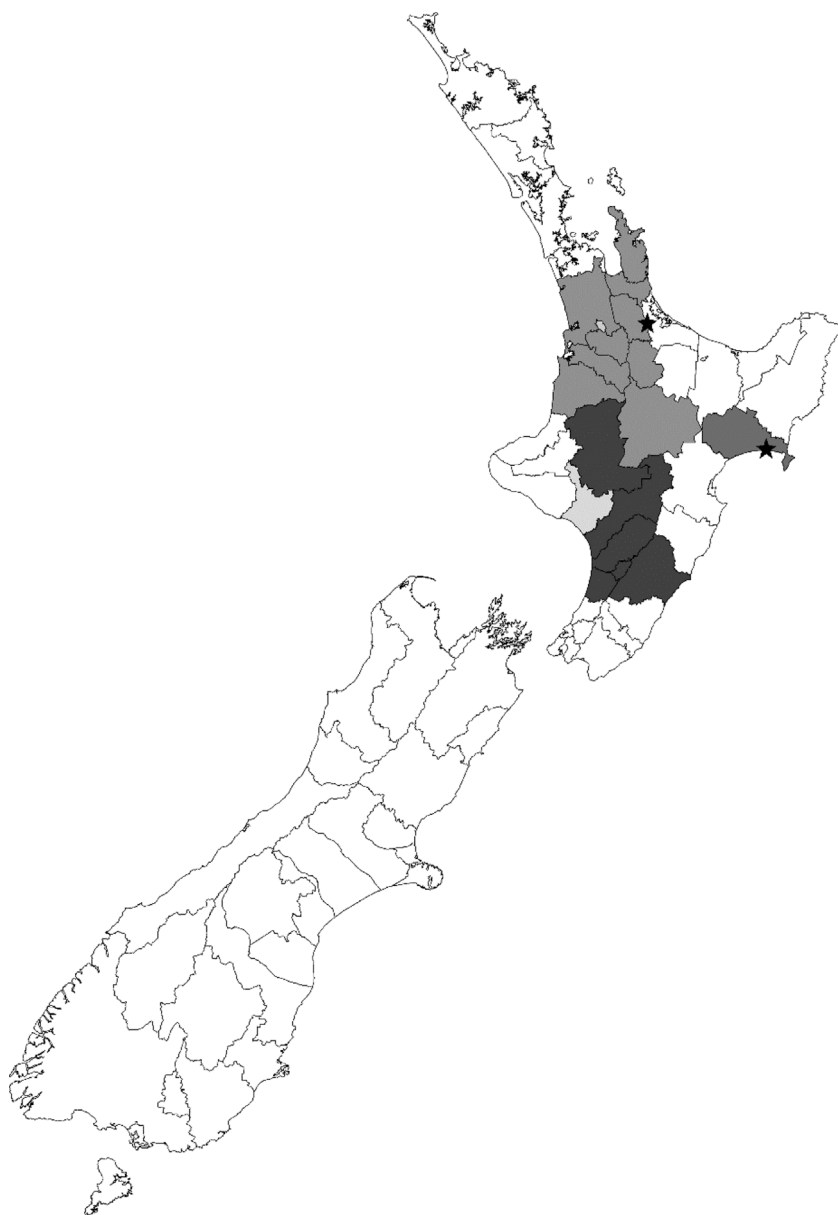


Fig. 1. Location of case studies regions in the context of the whole of New Zealand, stars indicate the location of the most spatially explicit work in the Waikato (LIBS) and Wairoa communities.

**Legend**

- The Sustainable Land Use Initiative (SLUI) in the Manawatu/Whanganui region - Regional level
- The Wairoa community - Wairoa district
- AgInform® modelling for sheep and beef farms in Whanganui
- Waikato Local Indigenous Biodiversity Strategies - Waikato Region

environmental dimensions of resilience. The framework was developed to locate the drivers behind each of the research project foci. The programme has evolved to be linked with the ‘Our Land and Water’ National Science Challenge (OLW NSC). Utilising such a framework involves many ontological and epistemological assumptions and limitations. Nevertheless, such a framework can be important for monitoring community resilience in order to determine the right mix of policy options at different scales, including local and national levels (Dwiartama and Rosin, 2014).

The method section explains how and why the four projects were

initiated in further detail and describes the different dimensions of resilience that are addressed by the projects. The discussion section draws together common themes from the cases and reflects on the usefulness of the framework for understanding both the research projects and resilience as a concept. The discussion then aims to address the primary research question: *how can we learn from and build on community resilience research?* The question is of a timely nature in the context of New Zealand due to recognition through the OLW NSC that the agricultural sector (and primary industries in general) need to reduce their impact on the environment whilst simultaneously increasing productivity as a

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