

# Rural Community Resilience

## Research Stocktake and Annotated Bibliography

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Research Report Prepared for AgResearch Limited by:

Mike Mackay and Karen Petersen

Faculty of Environment, Society and Design  
Lincoln University



New Zealand's specialist land-based university



# PREFACE

This publication was created as part of the *inception phase* of AgResearch's "Resilient Rural Communities" research programme. The programme aims to *co-create and implement locally contextualised, proactive resilience strategies and social innovations which help enable resilient, responsive, entrepreneurial, rural communities*. The current document comprises a review of a selection of recent published research papers (n=30) on rural community resilience. It covers applied and/or conceptual social science research articles published over the period 2010-2015,<sup>1</sup> thus building on the previous New Zealand-based review work of Pomeroy and Newell (2011) and Mackay, Perkins and Espiner (2009).<sup>2</sup>

The report was developed to support a series of preliminary activities during the design phase of the programme, including: (1) the co-creation of an overarching conceptual framework; (2) discussions at three multi-stakeholder workshops focused on identifying national challenges to rural socio-ecological resilience and co-defining science questions; (3) the identification of international/New Zealand case studies with the potential to explore/reveal/address different dimensions of rural community resilience; and (4) the writing of a draft proposal for subsequent phases of the project.

The document has two parts. Part 1 provides a brief introduction to and synthesis of the key themes which were identified in and across the selected research articles. Part 1 is to be used in conjunction with Part 2, which presents standalone summaries ("full annotations") of the key research papers discussed and signposted in the opening discussion. A full reference list is also provided at the end of the document.

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<sup>1</sup> Several articles have been included from outside the publication period criteria, on the basis that they are cited in the literature as keystone papers in the field of rural community resilience.

<sup>2</sup> Pomeroy, A. & Newell, J. (2011). *Rural community resilience and climate change: Background papers*. Report to the Ministry of Agriculture and Forestry, New Zealand. University of Otago: Centre for Sustainability: Agriculture, Food, Energy, and Environment; Mackay, M., Perkins, H., & Espiner, S. (2009). *The study of rural change from a social scientific perspective*. Christchurch: Lincoln University.



# PART 1: SYNTHESIS

There is currently an urgent search for new ways to understand and positively act in response to local–global processes which are testing the viability of many resource-dependent rural communities. While much of this commentary has focused on the real and/or potential impacts of disasters and adverse natural events on rural society and space, including earthquakes, climate change and floods (for New Zealand examples see Whitman et al., 2013; Pomeroy, 2011; and Smith et al., 2011 respectively), there is also growing interest in the impacts of slow-moving social and economic processes on rural areas – which may be just as disruptive (Skerratt, 2013) – and how people living and working in the countryside are experiencing these and reacting. While this work can be filed under the broad category of “rural change research” (see Mackay et al., 2009, for a review), a particular multi-disciplinary specialisation has emerged, focused on the concept of *resilience* (see Magis, 2010). The Stockholm Resilience Centre defines resilience as:

the capacity of a system, be it an individual, a forest, a city or an economy, to deal with change and continue to develop. It is about the capacity to use shocks and disturbances like a financial crisis or climate change to spur renewal and innovative thinking. Resilience thinking embraces learning, diversity and above all the belief that humans and nature are strongly coupled to the point that they should be conceived as one social-ecological system (cited in Moberg & Hauge Simonsen, 2011, p. 3).

Adger’s (2000) paper is often cited as the genesis of resilience thinking in rural social research. Drawing on insights from the field of systems ecology (e.g., Holling, 1973), Adger began to construct a conceptual platform for exploring how, like natural systems, complex *social* systems might be able to adapt to stressors and disturbances without fundamentally changing their basic function and form.<sup>3</sup> Given this link to the key principles of ecology, Adger’s (2000) work is also recognised as the catalyst for resilience thinking’s overarching *systems* orientation and SES, the acronym for the study of Social Ecological Systems (SES). SES theorists view the world as a complex and dynamic ‘system’ comprising myriad smaller and interconnected human-ecological subsystems which interact and move through short

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<sup>3</sup> More recently, Adger, with others, has applied resilience thinking to climate change research by examining the ability of communities to recognise and adapt to new and emerging climate-related risks (e.g., Adger et al., 2013).

and long-term periods of growth, collapse, reorganisation and renewal (Lyon and Parkins, 2013).

Magis (2010, also see Lyon & Parkins, 2013) describes a key paradigm shift in theorisations of resilience since the inception of the idea. As noted above, early studies were primarily focused on a (social) system's capacity to absorb disturbance and reorganise in order to retain the same basic function, structure, identity and feedbacks (e.g., Walker et al., 2004). But, Magis notes, more recent SES studies suggest that resilience not only includes an efficient return to normal, but can also provide the basis for community *transformation and renewal*, with some changes pushing systems to thresholds which require significant change, not just minor adaptations (Smit & Wandel, 2006). From this vantage point, disturbance to a system creates the opportunity for positive change (Folke, 2006).<sup>4</sup> So, the notion of system stasis has been replaced by the notion of adaptive renewal cycles stimulated by change. "This more complex rendering of resilience shifts attention from controlling change in presumably stable community systems to managing the capacity of dynamic communities to cope with, adapt to and shape change" (Magis, 2010, p. 404).

The paradigm shift noted by Magis (2010) and conceptualised earlier by Folke (2006) is also recognised by Scott (2013), who draws a clear distinction between what he calls equilibrium ('bounce-back') and evolutionary ('bounce forward') resilience research. Scott (2013) discusses these concepts in an assessment of the potential of resilience thinking for opening new perspectives within rural studies, both in terms of providing an analytical lens for understanding rural places and as an approach to "re-framing" rural development theory and practice.

*Equilibrium resilience* (or engineering resilience as it is sometimes called) is the orthodox view of community resilience outlined above, which focuses on the ability of a system to absorb shock and disturbances without experiencing significant changes to the

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<sup>4</sup> Resilience as opportunity is the central message of the much-cited work of Folke (2006). As later observed by Magis (2010), Folke argues that shocks and disturbances to social-ecological systems should pave the way for new innovations to emerge within the affected "system" and/or new development pathways to take hold. Thus, for Folke, resilience is about the ability of communities to see opportunities, break pre-existing development modes, set new long-term goals and use innovative thinking to bounce forward from adverse events.

system (e.g., Adger, 2000). Here, the measure of resilience is both the system's resistance to disturbances and the speed by which the system returns to normal or its "equilibrium". This perspective of resilience is commonly used in disaster management research and practice, where the ability of a community to "bounce-back" to a pre-disaster state after an event is the preferred outcome. Other recent applications of this perspective extend to analyses of economic shocks and the ability of communities to return to a pre-shock state through local action, industry and policy responses; and to regional studies, where there is an interest in the ability of economies to return to a previous level of growth, output or employment after an adverse event (see Martin & Sunley, 2015 for a discussion of regional economic resilience). A criticism levelled at the evolutionary approach is whether returning to normal or accommodating shocks is desirable after a disturbance, given that the shock may have revealed hidden system vulnerabilities<sup>5</sup> (see Davidson, 2010). Consequently the evolutionary approach does not seem to allow for reform or transformation as a response to a crisis. (This normalises a crisis, so often captured in the phrase that the changes being experienced are "just a natural cycle".)

*Evolutionary resilience*, by contrast, rejects the idea of an equilibrium or return to normal. It instead highlights ongoing change processes and adaptive behaviour and adaptability. Evolutionary resilience emphasises and encourages creative and entrepreneurial adaptation as a response to shocks and disturbance; it is arguably a more optimistic and potentially more radical form of resilience where system transformation is a possibility through individual or collective action characterised by a search for alternative

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<sup>5</sup> It is important to distinguish between the ideas of resilience and vulnerability which frequently appear in the rural change literature, but which are often used interchangeably. Drawing on the much cited work of Cutter et al. (2008), Matarrita-Cascante and Trejos (2013) purport that vulnerability relates to the qualities of a social system that create the potential for harm, and are evident in a place before an event. Research on vulnerability tends to explore the conditions that make a community fragile. These conditions include: poverty; inequality; marginalisation; lack of infrastructure; lack of information; low educational levels; and limited or poor governance. Community resilience, by contrast, focuses on the capacities that allow social systems to return to a normal state or create a new trajectory after an event. While many people focus on identifying vulnerabilities in their research, the authors suggest managers would benefit (strategically) from building knowledge with respect to the social attributes of resilience (in practice) with a particular focus on identifying and then building on existing strengths within communities.

development pathways. In the context of rural research, Scott (2013, pp. 600-601) believes that the advantage of the evolutionary perspective is that it can work to reveal:

- The importance of shocks intertwined with “the unfolding of broader, longer-run and slow burn processes” (Pike et al., 2010, p. 63) including long-term socio-spatial and economic restructuring processes;
- The potential of ‘locked-in’ development paths to compromise place resilience, whereby formal and informal institutional culture and relationships may inhibit adaptive behaviour and capacity. Similarly, the process of ‘de-locking’ may be central in path creation and transition towards a more sustainable future;
- The need to blend the local with the extra-local in building resilient places – in other words, deploying local assets within the context of global circuits of capital while competing to attract extra-local resources (also see Woods, 2014; Wilson, 2010, 2012).

In summary, evolutionary resilience challenges the dominant discourse about the desirability of communities getting back to a state of normality or ‘business as usual’. This perspective also draws attention to the dynamic (nonlinear) and malleable nature of social-ecological systems, comprising diverse actors with a range of social, economic, political and ecological functions.

A key goal for many rural resilience researchers has been to identify resilience attributes. These assemblages of attributes are commonly tabled in the literature and, when combined, indicate that resilience is a complex, multi-level<sup>6</sup> and multidimensional process. In practice and adhering to the principles of systems thinking, resilience cannot be studied through one lens or from one theoretical perspective (e.g., social networks) – a study of resilience must be more holistic. Specific attributes identified by researchers as being

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<sup>6</sup> The multi-scalar nature of resilience has led some researchers, such as Burkes and Ross (2012) to call for researchers to consider how multiple levels of social-ecological systems interact and influence each other; this would be achieved by utilising the panarchy concept which requires a focus on resilience at all levels (individual, family/household, community, region and nation). Others also highlight the importance of local/farm resilience in the context of global change (Wilson, 2010, 2012; Woods, 2014).



strongly linked to resilience in social-ecological systems include: **vision, leadership and trust; capacity to monitor and respond to environmental feedback; development of social networks and information and knowledge sharing via these networks; collaborative and social learning; and deliberative/participatory forms of local governance** (various authors cited in Maclean et al. 2014). Matarrita-Cascante and Trejos (2013) identify a similar set of social, economic, cultural and institutional factors which influence/affect community resilience, including: **knowledge and education; citizen involvement; communication and organisational skills; network development capability; diversity of local economic activities; access to credit (so locals can participate in new forms of income generation); and planning abilities**. Box 1, page 11, provides a summary of the community resilience attributes identified and discussed by Maclean et al. (2014). The obvious missing dimension is *social capital* which has also been linked to the capacity of a community to overcome adverse events (e.g., Adger, 2000; Aldrich & Meyer, 2014; Wilding, 2011).

Social capital, a term conceptualised in depth by Bourdieu (1985) and then popularised by Putnam (2000), “identifies how involvement and participation in [social] groups can have positive consequences for the individual and the community” (Aldrich and Meyer, 2014, p.3). Put simply, it is, like economic capital, a resource – in this case a network of acquaintances formed through trusting relationships – which can be drawn upon and mobilised in pursuit of a desirable outcome at the individual or community and neighbourhood levels. A key goal of hybrid social capital/resilience research is to identify how different forms of social capital may contribute to individual and community resilience.<sup>7</sup>

Aldrich and Meyer (2014) outline three recognised modes of social capital: bonding, bridging and linking. *Bonding* relates to the tight bonds and mutual trust which forms between close individuals, such as family and friends. Social capital often reveals itself by the emergence of social support in times of adversity and need. *Bridging* refers to weaker

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<sup>7</sup> According to Aldrich and Meyer (2014), Harvard University’s National Social Capital Benchmark Community Survey is the most commonly used questionnaire for gauging levels of social capital. The survey includes questions about people’s: sense of belonging to the community; participation in public meetings, local political events, associations and community projects; commitment to volunteering; frequency of visiting friends and neighbours; and membership in sports clubs and recreation groups.

interpersonal connections which form among individuals belonging to particular social and cultural groups (such as clubs, sports groups, organisations, community associations, farmers, political institutions, churches or school groups). These connections provide a further source of support and resources for those individuals who have these links. *Linking* refers to the connections that come to exist between so-called 'ordinary people' and those in power including government officials, local authorities and decision-makers.

The three-pronged social capital framework provides a useful tool for rural community resilience researchers to explore the means by which, in the event of a local adverse event, people are able to access the necessary support, information and resources required for a speedy recovery. Research shows that social capital (all three types working in combination) is particularly important following unanticipated events, such as earthquakes and adverse weather events, with communities with high social capital tending to recover more quickly and efficiently than those without strong networks. While much has been written about the positive effects of social capital on community resilience, research has also drawn attention to the dilemma of social isolation and disconnection from networks. It exposes the vulnerabilities of individuals/groups who do not have strong social ties and, by extension, lack support networks in times of need. This can manifest as a serious problem in rural areas, where populations are dispersed across large geographic areas.

Acknowledging the importance of social capital in determining a community's resilience to shocks (particularly natural disasters), Aldrich and Meyer (2014) call for planners to extend their activities and investments beyond preparing for disaster through only infrastructural improvements, to also include the development activities that connect people to each other (their communities) and their places and spaces. They review a selection of policies and programmes from around the world that have successfully deepened social networks, community cohesion and trust within communities, including social events, workshops, focus group meetings and collaborative planning. These may be new activities involving newly created networks, or they can tap into existing channels for social networking in a community. "By seeking to build up connections within and among residents, such preparation will provide neighbourhoods and communities with critical resilience in future crises" (Aldrich & Meyer, 2014, p.11).

The attributes of a community, including social capital, which have been shown to support resilience have, for the most part, been identified through case study research

involving the deployment of qualitative social research methods (see for example Adger, 2000; Amundsen 2012, 2013; Buikstra et al, 2010; Lyon & Parkins, 2013; Maclean et al., 2014; McCrea et al., 2014; McManus et al., 2012; Matarrita-Cascante & Trejos, 2013; Paniagua, 2013; Skerratt, 2013; Roberts & Townsend, 2015). The rural case studies included in this review (see Part 2) primarily focus on rural towns/regions which have experienced an adverse slow-onset event – such as the loss of a school (e.g., Oncescu, 2014) – or general local economic slowdown – and how the community was affected and responded (bounced back or forward). These studies follow a similar structure: profiling of the community, the problem/event in context, the impacts of the event and the nature of the community response. The preference for qualitative methods is due to the exploratory nature of much of the research and recognition that “measuring resilience is problematic and there is no universally agreed measurement tool” (Steiner and Markantonio, 2013, p.5).

**Box 1: Community Resilience Attributes (based on Maclean et al., 2014)**

Community resilience-building attribute	Description and key quotations
Knowledge, skills and learning	The ability of individuals/groups to respond to local issues, using knowledge partnerships (i.e., government/business/scientists working together to overcome local problems), enrolling appropriate technology and innovation, and skills development and consolidation (particularly a diverse skill-set appropriate to local contexts, in order to successfully negotiate change). "The dairy industry case study shows how knowledge, skills and learning improved peoples' ability to cope with and adapt to the changes that followed national restructure of that industry ... the success of certain farmers was in coping with the reduced income that initially resulted from the deregulation [was attributed] to their ability to develop and maintain good networks, which enabled them to actively seek new knowledge and information (including financial and business skills for farm management), and the propensity to experiment with technology ... [learning about and developing] new technological innovations to improve farming practice in the region" (p.149).
Community networks	Linked to social capital and encompasses the social processes and activities that support people/groups in a place. "In times of change these networks provide essential support, operationalise community capacity, identify opportunities, and provide a focus for renewed optimism and hope. Local leaders and volunteer workers facilitate effective community networks. While crises and other change events lead people to draw on existing community networks for support, they also facilitate network building by providing a specific focus for individuals and groups to work together" (p.150).
People-place connections	This acknowledges the very strong positive connections people have/make with their environs (their farms, river, homes, workplaces ...). It is closely linked to the ideas of social-ecological systems and land stewardship, which both highlight the strength of and interdependences between humans, society and nature. "Connections to place was evident in diverse sectors, such as tourism and dairy, where environmental stewardship was identified as a key component of management philosophies. Indigenous groups described a long held sense of cultural responsibility to country. The case studies suggest that much of the passion and commitment to protect and preserve cultural and natural landscapes emanates from connection to place. Attention to this aspect of social resilience presents opportunities for sustainable livelihoods development, particularly concerning indigenous land and sea management, ecosystem services, rural production and sustainable tourism" (p.150).
Community infrastructure	Required to support community needs and actions, and includes: diverse services and facilities (including medical and social services), recreation facilities, community centres, transport options, local arts and food markets, etc. "Participants reflecting on how they coped with the declaration of the Wet Tropics World Heritage Area in 1985, which terminated forestry, explained the importance of community infrastructure for improved local economic development. This included access to services, including: health care and other community support; as well as the provision of good road infrastructure to encourage new industries and business to the area" (p.151).
Diverse and innovative economy	Highlights the importance of mixed local economies comprising different industries and services, which support new opportunities. It acknowledges the need to keep up with demand-side changes (such as shifts in consumer preferences) with the view that these changes present new opportunities. "A regional economy that is over-reliant on a small number of major industries has an increased risk of impacts from national and global events. Participants observed that that the fostering of a diverse and innovative economy helps reduce vulnerability, and noted that a strong local focus and branding is essential to foster social resilience ... Many participants regarded the ability to do things differently as an essential aspect of the process of adapting" (p.151).
Engaged governance	This resolves around collaborative stakeholder (public, private, community) approaches to regional decision making and local/regional problem solving. It extends to "inter- and intra-sector partnerships, cross-scale networks, and science/government collaboration [which] are identified as crucial to solving local and regional challenges. Such initiatives facilitate the sharing of diverse knowledge and experience. Key mechanisms which support the development of engage government responses include inspired leadership, shared vision, appropriate communication, systems thinking, institutional capacity building and institutional learning" (p.152).

While “the farm” and agriculture are part of many of the above mentioned case studies of rural community resilience, in some projects they have been the sole focus of the inquiry. Forney and Stock (2013), for example, use socioecological resilience thinking (Walker et al., 2004) to evaluate rural community resilience in Southland, New Zealand where, over the last 30 years, land use has progressively shifted to dairying. The authors argue that Southland’s new super-productivist dairy farming phenomenon has potentially produced a rural/regional community with low resilience. This is because dairy systems are specialised and uniform, and lack the multifunctionality and diversity required to enable the system to transform (if required).

Darnhofer et al (2010), also consider New Zealand farms in the context of current resilience debates. They examine farming as part of a set of systems across spatial scales, from farm level to global, encompassing agro-ecological, economic and political-social domains. They question the mantra of production and efficiency in New Zealand agriculture, arguing that resilience is best achieved through adaptability, learning and change. They purport that resilience is more likely to emerge when the farmers have the capacity to transform the farm, when farm production is attuned to the local ecological carrying capacity and when learning and innovation are *targeted outcomes*.

A similar view is presented by Glover (2012) who highlights the importance of innovation and learning-based adaptation to the survival of small farm businesses in England. This research suggests the ability to learn (drawing on knowledge gained from previous experience) and to innovate is crucial for small businesses to survive and succeed in the wake of adverse events. Also important are having and using social networks (formal and informal). Innovation is discussed as a “way to survive” by “doing something new” – trying unusual approaches to problems ranging from changing marketing channels and using improvisation to repair farm equipment.

Given the emphasis on learning in resilience debates, Hunt et al. (2011) hone in on the role of agricultural extension in building strong and resilient agricultural communities and industries in Australia. Extension is defined as a process of building capacity for change and resilience in individuals and communities via improved communication and information flow between stakeholders. Extension and resilience are thus conceptually linked. However the authors claim that extension is more than just concerned with its traditional role in rural

education and training; extensionists “can play a catalytic role as community or industry innovators [and] facilitate processes which might lead to improved overall community capacity and resilience” (p.114). To support this argument examples are given of how Australian extension agents operating outside their core areas of responsibility have contributed to the resilience of rural communities.

McManus et al. (2012) also examine rural community resilience from the (family) farm perspective, against the backdrop of declining employment in Australian agriculture. The main aim of the research was to determine farmer’s perceptions of their interactions with their local town and how this may relate to rural resilience. Farmers were asked for their perceptions regarding changes over time in a range of ‘social fields’, including education, health, recreational leisure facilities, employment opportunities, belonging, safety and crime, local environment and housing. A perception that any of these fields is being eroded may lead to a reduction in positive feelings about the community. Overall, despite experiencing a severe drought, farmers generally did not feel that social and community life was deteriorating. Analysis of the farmers’ reported perceptions found that in both study areas perceptions regarding the environment were important for resilience, as were feelings of belonging, the local economy and community spirit. Despite population loss, economic difficulties and a severe drought, social cohesion in the both regions had not been adversely affected. This could be considered to be a form of stable adaptation to change. Farmers in these two areas participated formally and informally (through socialising) in community activities, including those in nearby towns. Informal socialisation was critical to the community as a whole but also to the individual farmers as a source of support through difficult times. Social connection with the nearest town was also important to farmers: “It is the primary place where they connect with others, offer and seek support, and build up feelings of affiliation and belonging” (p.28). The implication of this research for rural policy makers is that economic, environmental and social factors are inter-related and policies cannot focus solely on economic or environmental factors:

*Resilience is an outcome of people’s perceptions of the physical environment, their sense of belonging and job opportunities. Paying careful attention to farmers’ perceptions of these factors, and particularly how they may be changing over time, is the first step to identifying the potential of small rural towns to be resilient in the face of major, inter-related economic, social and environmental challenges.*

(McManus et al., 2012, p.28).

## Summary Points

By way of a brief summary, the following key points can be made with respect to the current state of the knowledge on rural community resilience:

1. Internationally, interest in the concept of rural community resilience is growing, with published research spanning a wide range of fields including: community studies; regional (economic) development; rural sociology; psychology; disaster planning and management; human geography; policy; SES (as a specialist field); and agricultural extension/education.
2. The popularity of the term resilience – marked by its adoption across multiple research fields – has led to criticisms that it is being overused and, by extension, has lost its explanatory/analytical power (i.e., it has become a fuzzy/messy concept).
3. With the exception of climate change-related articles and disaster response, only a handful of research papers deal explicitly with rural resilience in New Zealand. There is, however, a well-developed rural development literature in New Zealand, which has strong ties to resilience thinking. The Pomeroy (2011) report helpfully draws much of this together (also see Mackay et al. 2009).
4. In general, there are two classes of rural resilience research. First is a body of work produced by those interested in disaster response and natural hazards, which tends to focus on “equilibrium resilience” – more commonly known as “bounce-back” i.e., the factors which help a community return speedily to a pre-event/disaster state.
5. Second and in contrast, is an emerging literature dealing with slow-burning/onset rural change. This is influenced by “evolutionary resilience” thinking, which emphasises current system failure/vulnerability – put simply, rural decline – and the need for the co-production of new and innovative development trajectories for rural communities – a “bounce-forward” perspective/approach.
6. A line of distinction can also be drawn between (1) resilient rural community research and (2) the resilience of individuals, the latter the focus of rural psychologists. Some researchers, however, see the importance of bringing these fields together, recognising that a resilient rural community will enhance local well-being, with flow on effects for individuals.
7. A key debate in the literature is whether resilience is a state or a process, with the latter seeming to be in favour among social scientists.
8. With respect to methods, most conceptual studies employ qualitative methods and a case study approach, often comparative (comparing a seemingly thriving community

with one in a process of decline). Applied studies (action research) also adopt a case study approach, combining methods, integrating interviews and secondary data analysis, with community workshops of various sorts, but with an increasingly common emphasis on exploring future scenarios, in order to identify/reveal concealed vulnerabilities that the community and local institutions can act on.

9. Case studies tend to focus on either a particular 'place' (generally) or the effectiveness of a particular intervention – such as the success of a rural extension programme aimed at building community resilience.
10. Work on identifying the key attributes of farm (business) and rural community resilience highlight the importance of:
  - reflexive learning;
  - local cultural context (with rural communities responding differently to the same change processes);
  - collective action (working towards as a community);
  - engaged/collaborative governance;
  - social capital;
  - social and community networks;
  - people-place connections; and
  - developing a diverse and innovative economy (enabled by public/private investment and entrepreneurial spirit).



## PART 2: ANNOTATIONS

### 1. **Adger, N. (2000). Social and ecological resilience: are they related? *Progress in Human Geography*, 24, 347-364.**

This paper is often cited as: (1) the genesis of *resilience thinking* in social research, (2) the origins of the field's overarching *systems thinking* orientation, and (3) the first attempt to link the concept of community resilience research to ideas about social capital. Drawing on insights gleaned from the field of systems ecology (e.g., Holling, 1973), Adger set out to construct a conceptual platform for explaining how complex social systems (defined at the community scale) might adapt to political and/or environmental stressors and disturbances without fundamentally changing their function and form. Adger sharpened his conceptual thinking through a period of applied field work in a resource-dependent rural community in Vietnam. The study highlighted the importance of (1) social capital in the community's ability to respond to shocks and disturbances and (2) the local cultural and institutional context, such as the rules and norms (e.g., property rights) that govern the use of natural resources and which create incentives for sustainable or unsustainable use. More recently, Adger, with others, has imported resilience thinking into climate change research, via research examining the ability of communities to recognise and adapt to new and emerging climate related risks (e.g., Adger et al., 2013).

### 2. **Aldrich, D. P., & Meyer, M. A. (2014). Social capital and community resilience. *American Behavioural Scientist*, 1-16.**

The concept of resilience is now well-embedded in social-ecological systems research and is also gaining currency in: sociology; community development; psychology; regional, urban and rural studies; and disaster and natural hazards research. A recurring theme across these disparate disciplines is how social capital does, or does not play a role in the strengthening of rural communities (e.g., Wilding, 2011). Broadly speaking, social capital, a term conceptualised in depth by Bourdieu (1985) then popularised by Putnam (2000), "identifies how involvement and participation in [social] groups can have positive consequences for the individual and the community" (p. 3). Put simply, social capital, like economic capital, is a *resource* – in this case a network of acquaintances formed through trusting relationships – which can be drawn upon and mobilised in pursuit of a desirable outcome at the individual or community and neighbourhood levels. According to Aldrich and

Meyer, *Harvard University's National Social Capital Benchmark Community Survey* is the most commonly used questionnaire for gauging levels of social capital. The survey includes questions about peoples': sense of belonging to the community; participation in public meetings, local political events, associations and community projects; commitment to volunteering; frequency of visiting friends and neighbours; and membership in sports clubs and recreation groups. A key goal of hybrid social capital/resilience research is to identify how different forms of social capital may contribute to individual and community resilience.

The authors of this paper note that, technically, there are three types of social capital: bonding, bridging and linking. *Bonding* relates to the tight bonds and mutual trust which forms between close individuals, such as family and friends. It often reveals itself in the form of social support in times of adversity and need. *Bridging* refers to weaker interpersonal connections, which form among individuals belonging to particular social and cultural groups (such as clubs, sports groups, organisations, community associations, farmers, political institutions, churches and school groups). These connections provide a further source of support and resources for those individuals who have these links. *Linking* refers to the connections that come to exist between so-called 'ordinary people' and those in power including government officials, local authorities and decision-makers.

For rural community resilience researchers, the three pronged social capital framework provides a useful tool for exploring the means by which, in the event of a local adverse event, people are able to access the necessary support, information and resources required for a speedy recovery or "return to normal". Research shows that social capital (all three types working in combination) is particularly important following unanticipated events, such as earthquake and weather events, with communities with high social capital tending to recover more quickly and efficiently than those without strong networks. While much has been written about the positive effects of social capital on community resilience, the work also draws attention to the dilemma of social isolation and disconnection from networks. It exposes the vulnerabilities of individuals/groups who do not have strong social ties and, by extension, lack support networks in times of need. This can manifest as a serious problem in rural areas, where populations are dispersed across large geographic areas.

Acknowledging the importance of social capital in determining a community's resilience to shocks (particularly natural disasters), Aldrich and Meyer call for planners to extend their activities and investments beyond preparing for disaster through only infrastructure

improvements, to also include the development activities that connect people to each other (their communities) and their places and spaces. They review a selection of policies and programmes from around the world that have shown to deepen social networks, community cohesion and trust within communities, including social events, workshops, focus group meetings and collaborative planning. These can be new activities involving newly created networks, or they can tap into existing channels for social networking in a community. “By seeking to build up connections within and among residents, such preparation will provide neighbourhoods and communities with critical resilience in future crises” (p.11).

**3. Amundsen, H. (2012). Illusions of resilience? An analysis of community responses to change in Northern Norway. *Ecology and Society*, 17(4), 46.**

This paper defines community resilience as “the ability of a community to cope and adjust to stresses caused by social, political, and environmental change and to engage community resources to overcome adversity and take advantage of opportunities in response to change” (p. 46). There may however be a limit to how much change a community can adapt to. Communities can be resilient at the local level but less resilient when exposed to unprecedented global environmental and socioeconomic changes. The paper outlines a mixed method qualitative study of community resilience of the village of Senja in northern Norway. In-depth, semi-structured interviews, document analysis, participant observation and media searches were deployed to determine how the community dealt with current challenges. Data analysis revealed that six dimensions of community resilience, which had been identified in previous research, were particularly applicable to the village. These were: community resources; community networks; institutions and services; people–place connections; active agents; and learning. These dimensions were activated via processes and activities to allow the village to respond to current challenges. Amundsen questions, however, whether such communities have become complacent about their ability to adapt to external shocks, based on their having experienced and successfully adapted to multiple shocks in the past. Amundsen suggests that future shocks are likely to be of a much more severe nature and that successful adaption is less certain in the future. Learning may become increasingly important for communities to be able to adapt to future unprecedented challenges resulting from multiple factors at interlinked scales: “Unless communities actively engage in reflexive learning processes about the causes of systemic changes and the links between local and global processes, there is a risk that community resilience becomes nothing more than an illusion” (concluding paragraph).

**4. Amundsen, H. (2013). Place attachment as a driver of adaptation in coastal communities in Northern Norway. *Local Environment*, 20(3), 257-276.**

The paper presents research into whether “place attachment” *affected* adaptive responses to change (primarily declining populations and loss of jobs and services) in two coastal municipalities in northern Norway. Amundsen used a qualitative study employing in-depth interviews of 40 residents plus participant observation and document analysis, to determine interviewees’ perceptions of changes and adaptation in their communities. The study found that place attachment was a powerful motivator for local people to adapt to external changes, so as to maintain community wellbeing. ‘Place’ was meaningful to the locals and inspired various adaptation strategies employed by the local community, such as the organisation of festivals where uniqueness of place was used to attract performers and audiences; the successful opening of a local private school to replace two state schools closed due to declining rolls; new developments and jobs based on the local fishery; and initiatives such as a heritage trail aimed at encouraging locals in particular to engage with and celebrate the area’s history.

**5. Berkes, F., & Ross, H. (2012). Community Resilience: Toward an Integrated Approach. *Society & Natural Resources*, 26(1), 5-20.**

The authors identified two overlapping strands of research literature relating to resilience and propose the development of an integrated approach to inform research and practice. Resilience thinking has become an important conceptual approach to understanding how to deal with environmental change, especially at the ecosystem level. Yet while there is a significant body of research literature on the application of resilience thinking at the ecosystem level, less is known about how the concept can be applied at the local and community levels. The panarchy concept, which describes how multiple levels of social-ecological systems interact and influence each other, suggests that attention needs to be paid to resilience at all levels. The authors claim that one strand of literature relates to social-ecosystems and originates from ecology. It is strong with regards to the biophysical component but the social science component is weakly developed. The second strand originates from health and developmental psychology literature and originally concerned the ability of an individual to recover from adversity. This strand has recently extended the resilience concept to the resilience of communities, in fields such as disaster management and community development. Both strands focus on “the adaptive capacity of a system

(individuals, communities, larger societies, corporations, social–ecological systems, ecosystems) in the face of change.” (p. 7). The second strand of research on resilience focuses on identifying and building on an individual’s or community’s strengths rather than their deficits.

Berkes and Ross conclude that the literature from research into socio-ecological systems provides a rich set of analytical concepts whereas the research on resilience from the fields of psychology and mental health provides an understanding of the utility of social science. They do not suggest merging the concepts due to their markedly different origins. Of particular relevance to rural resilience in New Zealand is the authors’ claim that “The social-ecological systems strand is most relevant for communities of place...particularly those communities interacting closely with their environments.” (pp. 16-17). They do not elaborate on this however, or cite any other papers that might help here. They identify a set of community strengths that they believe assist the development of resilience: “people–place connections; values and beliefs; knowledge, skills and learning; social networks; engaged governance (involving collaborative institutions); a diverse and innovative economy; community infrastructure; leadership; and a positive outlook, including readiness to accept change.” (pp. 13-14).

**6. Buikstra, E., Ross, H., King, C. A., Baker, P. G., Hegney, D., McLachlan, K., & Rogers-Clark, C. (2010). The components of resilience — Perceptions of an Australian rural community. *Journal of Community Psychology*, 38(8), 975-991.**

The authors state that resilience is about overcoming adversity; it is a highly complex dynamic phenomenon with many interrelated components, which change over time. It is important to identify the mechanisms or processes underlying resilience so that interventions aimed at building resilience are based on sound theoretical and empirical knowledge. Resilience at individual and community levels are thought to be synergistic, and from a systems perspective community resilience may be greater than the sum of the resilience of its individual members, however the inter-relationships between the two are poorly understood.

With the aim of better understanding these inter-relationships, a participatory action research project was initiated in conjunction with the Stanthorpe community of southeast Queensland.

The aim of the project was to develop, implement and evaluate a model to help build the resilience of rural people and communities. The Stanthorpe area had experienced a protracted drought, “black frosts”, hail storms, and bushfires and was rated as highly disadvantaged, however the community had, via its participation in a range of social initiatives, shown it had the capacity to respond positively to adversity. Academics and community representatives worked on the project as co-researchers. The project was implemented in three phases: Phase 1: exploration of key informants’ conceptions of resilience; Phase 2: interviews with community members to identify and explore components of individual and community resilience; and Phase 3: the design, trial and evaluation of a resilience toolkit by the Stanthorpe community. The results of Phase 2 are reported in the current paper.

The theoretical basis of the research project included Kulig, et al.’s systems-based model of community resilience (see for example Kulig, Edge, and Joyce (2008), and Flora, Flora and Fey’s (2004) systems-based framework of community capitals. Seventy-five interviews were conducted with members of the Stanthorpe community to ascertain what concepts the participants thought contributed to individual and community resilience. The participants were asked three broad questions: “(a) Stanthorpe has been identified as a resilient community. What do you think makes it so? (b) What makes a resilient individual? (c) What do you believe are the characteristics of an ideal resilient community?” (p.980). Thematic analysis of the participants’ responses identified 11 major resilience-promoting concepts (summarised in Table 1): social networks and support; positive outlook; learning; early experience; environment and lifestyle; infrastructure and support services; sense of purpose; diverse and innovative economy; embracing differences; beliefs; and leadership.

The resilience-promoting concepts identified were considered to provide evidence of how interactions between individuals, the community, community infrastructure, the environment and the local economy contribute to resilience. Of particular note was the way individual and community components interacted to form or support resilience and the observation that the same factors can contribute to both individual and community resilience, but to varying extents. The participants considered resilience to be a process with lifelong learning possibly an important part of this.

The toolkit produced in Phase 3 of this project has been used in the Stanthorpe community for a variety of projects and is available for use by other rural communities. Although some of

the individual components identified were possibly unique to Stanthorpe, they were similar to those identified in other, similar research. However the researchers recommend the use of a participatory action research approach to tailor use of the toolkit to other communities.

**Table 1: Eleven resilience-promoting concepts (based on the findings of Buikstra et al., 2010)**

<b>Resilience-promoting concept</b>	<b>Description</b>
Social networks and support	Social network and support were seen as a critical to resilience. Support from family, friends or networks based on shared interests was considered an important foundation for both individual and community resilience.
Positive outlook	A positive outlook was also considered to be crucial for individual and community resilience. The most frequently mentioned characteristics of a positive outlook were determination, perseverance, and the ability to bounce back from adversity.
Learning	Learning from experience and ongoing formal and informal learning were both seen as important for both individual and community resilience.
Early experience	The influence of early experiences, such as struggle or hardship, cultural factors such as Italian heritage, and parenting practices, was seen as an important component of individual and community resilience.
Environment and lifestyle	This included the aesthetic appeal of the community, built and natural, and the character-building influence of adverse climatic events. Many interviewed commented that the region's attractive natural environment and informal rural lifestyle was pivotal to the community's resilience.
Infrastructure and support services	These included water supplies, recreational facilities, and public transport. Participants from the commercial sector and a youth group in particular considered the absence of these adversely affected resilience in the Stanthorpe community.
Sense of purpose	This was seen as especially important for individual resilience, less so for community resilience except during times of crisis such as when fighting bushfires.
Diverse and innovative economy	This was rated as especially important by the commercial group, including farmers who thought that being able to switch to other crops due to favourable soil and climate increased their individual resilience.
Embracing differences	Social diversity (facilitated by multiculturalism and continuing immigration) was seen as an important component of community and (to a lesser extent) individual resilience. Commercial participants in particular appreciated the skills and ideas new people brought to the community.
Beliefs	Shared religious beliefs were thought to both enhance and impair community resilience (due to the possible creation of "in-groups").
Leadership	While some participants felt Stanthorpe lacked good leadership engagement many recognised the importance of good leadership in creating an ideal resilient community.

**7. Darnhofer, I., Fairweather, J., & Moller, H. (2010). Assessing a farm's sustainability: insights from resilience thinking. *International Journal of Agricultural Sustainability*, 8, 186-198.**

This paper examines farming as part of a set of systems across spatial scales, from farm to global and encompassing agro-ecological, economic and political-social domains. Rather than a focus on production and efficiency, they argue that farm sustainability is achieved through adaptability, learning and change. Resilience more likely to emerge when the farmers have the capacity to transform the farm, when farm production is attuned to the local ecological carrying capacity and when learning and innovation are targeted outcomes.

**8. Folke, C. (2006). Resilience: The emergence of a perspective for social-ecological systems analyses. *Global Environmental Change*, 16, 253-67.**

In this much-cited paper, Folke argues that shocks and disturbances to social-ecological systems should pave the way for new innovations to emerge the affected "system" and/or new development pathways to take hold. Thus, for Folke, resilience is about the ability of communities to see opportunities, set new long term goals and use innovative thinking to bounce forward from adverse events. This aligns with Scott's (2013) notion of evolutionary resilience, which (1) accounts for the fact the systems are never the same after they have experienced shocks and disturbances and (2) challenges the dominant discourse about communities getting back to a state of normality or 'business as usual'. This perspective also draws attention to the dynamic (nonlinear) and malleable nature of social-ecological systems, comprising diverse actors with a range of social, economic, political and ecological functions.

**9. Forney, J., & Stock, P. V. (c2013). Conversion of family farms and resilience in Southland, New Zealand. *International Journal of Sociology of Agriculture and Food*, 21(1), 7-29.**

Forney and Stock (c2013) use the socioecological resilience thinking of Walker et al. (2004) to evaluate community resilience in Southland, New Zealand. Over 30 years land use in Southland has progressively changed to become predominately dairying. The authors argue that using resilience thinking it can be claimed that dominance of a super-productivist farming system, such as dairying, results in rural communities with low resilience. Such



systems are specialised and uniform, and hence lack multifunctionality and diversity, both necessary to build capacity for transformability. The authors also ask “is it possible to be resilient to rural economic revival?” (p. 25). Although conversion to dairying has been a significant factor in the recovery of Southland from 1980s deregulation, “Bringing Walker et al.’s (2004) ‘basin of attraction’ concept to bear, these statements can be interpreted as a narrowing and deepening of the ‘dairy basin’, making it harder the get out of it.” (p. 26). They end however on a more positive note by saying: “Nevertheless, Southland’s ability to weather such disruptive times offers hope to other communities concerned about the vagaries of contemporary agriculture. Southland’s resilience emerges from its maintenance of family farming and actively incorporating – economically and socially (and, hopefully, environmentally) – major changes since the 1980s” (p. 26).

#### **10. Glover, J. (2012). Rural resilience through continued learning and innovation. *Local Economy*, 27(4), 355-372.**

This paper discusses the importance of innovation and learning to the survival of small farm businesses in England. The author defines resilience as a process which involves adversity and adaptation. Research suggests the ability to learn and to innovate is crucial for small businesses to build capacity to survive and succeed. Small family farm businesses can thus use learning and innovation to adapt to adversity and increase their resilience in the face of change. Key personnel from 10 small farms were interviewed and their responses analysed to identify four themes relating to their resilience: strategies; resources used; learning; and innovation.

- *Theme 1: Strategies:* All farms followed strategies to cope with change, in some cases more than one strategy. Strategies employed included: continue with no change; diversify; expand; find alternative earning streams; mix and match strategies; leave and move to another agricultural sector; change routines. (These strategies are similar to those noted by Woods (2014)).
- *Theme 2: Resources used:* In all cases social networks (formal and informal) were important for developing resilience.
- *Theme 3: Learning:* In all cases farmers indicated they drew on knowledge gained from previous experiences and that learning was a constant part of farming.
- *Theme 4: Innovation:* The author did not precisely define innovation, variously describing it as a “way to survive”, “doing something new” and trying unusual approaches to problems. However she concluded the small farmers interviewed used innovation in various ways to survive, ranging from changing marketing channels and improvising to repair farm equipment.

Lifelong learning was identified as key to each case building resilient capacity. This supports previous research that the ongoing challenges of farming can be seen as resilience-building factors, not just as stressors.

**11. Hunt, W., Vanclay, F., Birch, C., Coutts, J., Flittner, N., & Williams, B. (2011). Agricultural extension: Building capacity and resilience in rural industries and communities. *Rural Society*, 20(2), 112-127.**

The authors of this paper argue that agricultural extension can build capacity and resilience in rural industries and communities in Australia. Traditionally agricultural extension has primarily aimed to improve on-farm agricultural or natural resource management practices. The authors however claim that contemporary agricultural extension can in addition build capacity and resilience in rural industries and communities. The paper defines resilience as “the capacity of an individual or community to cope with stress, overcome adversity, or adapt positively to change” (p. 113). Extension is defined as a process of building capacity for change and resilience in individuals and communities via improved communication and information flow between stakeholders. Extension and resilience are thus conceptually linked. However the authors claim that extension is more than just concerned with education and training; extensionists “can play a catalytic role as community or industry innovators [and] facilitate processes which might lead to improved overall community capacity and resilience” (p. 114). To support this argument examples are given of Australian extension agents operating outside their core areas of responsibility. Extension staff made significant contributions to recovery from Severe Tropical Cyclone Larry; record pest outbreaks in the sugar industry between 1999 and 2002; and bushfire response efforts between 2005 and 2009. The authors also present a case study of an industry-sponsored extension programme, SheepConnect-Tasmania. In addition to farmer-focussed education the programme helped develop rural social services and participated in the development of industry and government policy regarding drought.

**12. Kulig, J. C., Edge, D. S., Townshend, I., Lightfoot, N., & Reimer, W. (2013). Community resiliency: Emerging theoretical insights. *Journal of Community Psychology*, 41(6), 758-775.**

The concept of resilience is useful to help understand how communities respond to change and to help communities to build resilience to future events. This paper traces the development of the concept of resilience from its origins, primarily the fields of ecology and

psychology, and discusses difficulties with current theoretical understanding of the concept which affect its practical application. A number of resilience models are discussed and a new measure of perceived community resilience is presented. The authors also discuss previous work exploring social resilience, including that of Adger (2000), one of the first to study community resilience, and a variety of studies involving Judith Kulig in the 2000s looking at community resilience in rural, resource-based communities in Canada which resulted in social models of resilience.

Two basic conceptual challenges are highlighted. First, because resilience is typically defined as a dynamic process involving change over time, *measurement* of resilience is challenging. The resilience of an individual, community, or system can only be determined by studying the entity's response to stress over some time period. In many cases the chronological nature of resilience is lost because of the synchronous nature of studies. Second, resilience is not often defined as a characteristic that is independent from the factors contributing to it and, in some cases, its consequences." (p. 760). The authors caution that very few definitions of resilience focus on resiliency rather than its influences and consequences. The Stockholm Research Centre's definition of social resilience is one of the few that focusses on resiliency itself: "Social resilience is the ability of human communities to withstand and recover from stresses, such as environmental change or social, economic or political upheaval" (Stockholm Resilience Centre, 2007). Consequently the authors claim that Adger's empirical work, for example, tends to conflate resiliency with some of its consequences (such as employment and crime rates), especially when trying to measure resilience. Because of these conceptual challenges it can be difficult to determine if specific factors influence or are components of resilience.

The Updated Community Resilience Model (reproduced in Kulig et al. (2013)) (Figure 1, below) describes key factors that may *contribute* to community resilience: interactions as a collective unit; expression of a sense of community; and community action. (See Oncescu (2014) for an example of how this model can be applied.) It is important to understand these factors are not indicators of resilience and the model is not one of resiliency itself. The other models the authors reviewed were: a community resilience model (Mowbray et al., 2007); and the Community and Regional Resilience Initiative (CARRI) model (Cutter et al., 2008a) and the Disaster Resilience of Place (DROP) model (Cutter et al., 2008b).

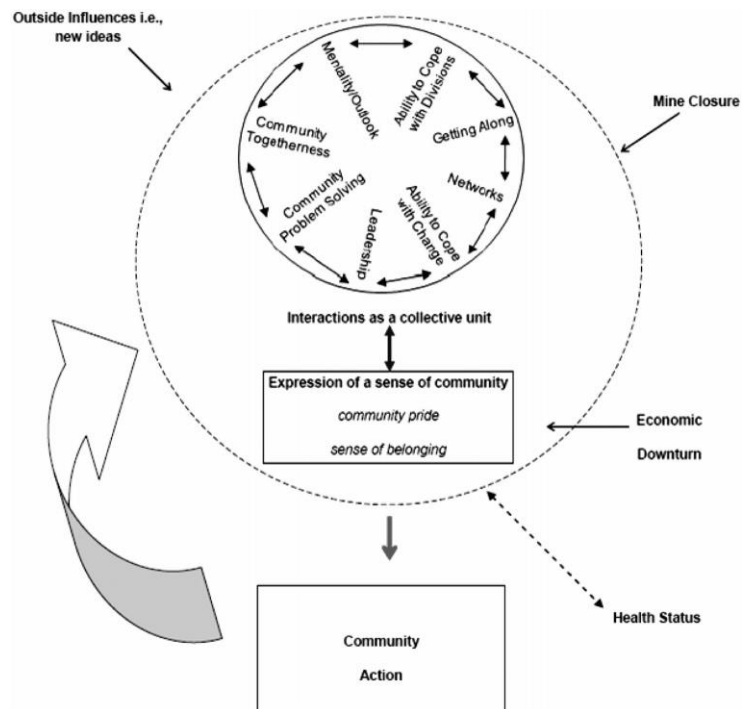


Figure 1: Updated community resiliency model. Reprinted with permission from Journal of Rural and Community Development, Volume 3, No. 3 77–94. (Cited in Kulig et al., 2013, p.761).

**13. Lyon, C., & Parkins, J. R. (2013). Towards a social theory of resilience: Social systems, cultural systems, and collective action in transitioning forest-based communities. *Rural Sociology*, 78(4), 528-549.**

Social ecological systems (SES) theorists conceptualise the world as a complex and dynamic 'system' comprising myriad smaller and interconnected human-ecological subsystems which interact and move through short and long-term periods of growth, collapse, reorganisation and renewal (Lyon and Parkins, 2013). In SES thinking, the concept of resilience broadly relates to the capability of a 'subsystem' – such as a natural resource dependent rural community – to both maintain its regular form and function through a long or short-term period of change, or to effectively adapt to the new context brought about by local change processes – proactively responding to the new challenges faced and opportunities presented (Lyon and Parkins, 2013). More technically, however, the language of SES distinguishes between the concepts of resilience, adaptation and transformation, with resilience relating to the persistence of a system which is experiencing stress. Adaptation is the term used to describe how local actors manage change, while transformation describes emergence/development of a new system “when the old system does not prove resilient” (Lyon and Parkins, 2013, p.530).

The authors note that significant changes are underway in natural resource dependent communities in Canada and draw on the example of the forest sector which has closed many rurally located mills presenting serious livelihood challenges for those living in these areas. Communities, they argue, respond differently to such situations, with some responding proactively and subsequently surviving and thriving, while others languish and undergo radical changes in demographic and economic composition. The context for this paper is then “community transition”. The authors note that scholars have applied a variety of models to study and support transitioning communities, but in recent years, have relied heavily on the concept of social resilience to address urgent questions of sustainability at the community level. The research the paper reports explores culture and agency in the context of resilience thinking; they find that the local cultural context plays a significant role in shaping the community response. The research involved a focused ethnography combining key informant interviews, participant observation, photographs and secondary data analysis. The method was chosen in order to achieve diverse perspectives on community response to mill closures. Two case studies are presented, each a dependent forestry community where mills had closed. A comparative analysis finds that in one location there was “resistance to

change” (in the form of collective action that attempted to stand in the way of mill closure to thwart the loss) and, in the other case, “non-resistance”.

Resistance in Youbou: here, the loss of the mill deeply resonated with locals (former workers and community) associated with mill attachment and livelihood attachment (i.e., the company was part of everything in the town). “The centrality of the mill to historical community life described above gives an indication of the severity of the impact that its loss imposed on the community” (Lyon and Parkins, 2013, p.539). Mill identity and community identity closely linked and continues to resonate with the community.

Non-resistance in Fort St James: here, there was little collective action that *directly* challenged the closure of the mill. Community action in Fort St James was pro-active – mitigating the impact of mill closure through the development of education and retraining programmes. But here there was an absence of a mill-orientated cultural system – with local energy able to be harnessed for retraining and other local programmes. The town was not constrained by attachment to the mill so different manifestations of collective action emerged. The key here was that there was a plurality of economic orientations prior to mill closure allowing a broader spectrum of possibilities post closure.

The findings emphasise the importance of local cultural context and temporal/historical factors in shaping responses/adaptations. While the impetus for change was the same (i.e., mill closure) different responses were evident; the cultural system in each case study resulted in diverse drivers of collective action and, by extension, unique outcomes.

**14. Maclean, K., Cuthill, M., & Ross, H. (2014). Six attributes of social resilience. *Journal of Environmental Planning and Management*. 57(1), 144-156.**

Social resilience research “...focuses on the attributes and processes that assist people, and the SES they participate in and influence, to manage through crises and to make successful transformations. It is closely related to the concept of adaptive capacity, to the extent that some treat these as synonymous concepts, while others recognise resilience as a process of development that translates adaptive capacity” (p.146). A refined definition of social resilience, developed earlier by these authors and their collaborators is revisited; resilience is: “the way in which individuals, communities and societies adapt, transform and potentially

become stronger when faced with environmental, social, economic or political challenges (Cuthill et al., 2008, 146). Researchers studying complex, dynamic and adaptive social-ecological systems, view resilience as the “adaptive and learning capacity of individuals, groups and institutions to self-organise in a way that maintains system function in the face of change or in response to a disturbance” (Maclean, et al., 2014). Attributes recognised as being strongly linked to resilience in (social) systems include: vision, leadership and trust; capacity to monitor and respond to environmental feedback; development of social networks; and information/knowledge sharing (via these networks); collaborative and social learning; and deliberative/participatory forms of local governance (various authors cited in Maclean et al. 2014). SES practitioners recognise that because systems are characterised by uncertainty, adaptive management becomes critical. While many people focus on identifying vulnerabilities in their research, the authors suggest managers would benefit (strategically) from building knowledge with respect to the social attributes of resilience (in practice) with a particular focus on identifying and then building on existing strengths within communities. This would shift the social policy agenda away from its focus on redressing deficits.

In the study reported in this paper, the multi-disciplinary team worked with representatives from governments and NGO’s from Wet Tropics region in North Queensland to identify the key attributes of community resilience. In partnership with key local agencies, government officials and NGOs, the researchers selected six case studies located across two river catchments in the Wet Tropics region (of North Queensland, Australia). All but one of the case study sites had experienced a “major change event” of interest over the past two decades. The sixth case study was selected on the basis that it could provide an indigenous perspective of social resilience. The specific case study locations and the associated “change events” of interest were (Maclean, et al., 2104, p.148):

- The upper zone of the Johnstone River catchment and the restructure of the dairy industry;
- The upper zone of the Barron River and a water allocation process;
- The middle zone of the Johnstone River catchment and the declaration of the Wet Tropics World Heritage Area;
- The coastal zone near Cairns (the major regional city) and rapid urban expansion;
- The Great Barrier Reef and the most recent outbreak of the crown of thorns starfish (1993-2003); and
- Giringun Aboriginal Corporation and how an Aboriginal community copes with change.

Seventy one interviews were conducted across the six case study sites, including conversations with: Aboriginal people, farmers, fishers, foresters, tour operators, small business owners, representatives from NGOs and government officials. Interviews provided a forum for openly discussing the origins and nature of “the event” in question, the impact of the event on themselves and their local community, how they and their community had adapted (if at all) and the skills perceived to be needed in order to be “proactive” in the face of future disturbance events. Data analysis revealed six key attributes of enhanced social resilience (refer Table 2), namely: knowledge, skills and learning; community networks; people-place connections; community infrastructure; diverse and innovative economy; and engaged governance.

How might this information – the six attributes of resilience – be used by local/regional actors to enhance/foster community resilience? The authors offer three examples. First, regional organisations can recognise variations in people-place relationships within their region and vary their communication strategies accordingly. Second, they can build new or support existing networks towards (land, ocean, river) stewardship behaviour, such as land-care and water care groups or community-based environmental monitoring networks. Third, regional organisations can embed social resilience enhancement in their mandate – “developing, new, more engaged governance forms such as co-management with diverse stakeholders, including traditional owners. Another option is to explicitly build governance capacity, for example, by resourcing the formation and activities of indigenous organisations, and conducting projects and research collaborations that enhance governance capacity throughout the community” (p.153).

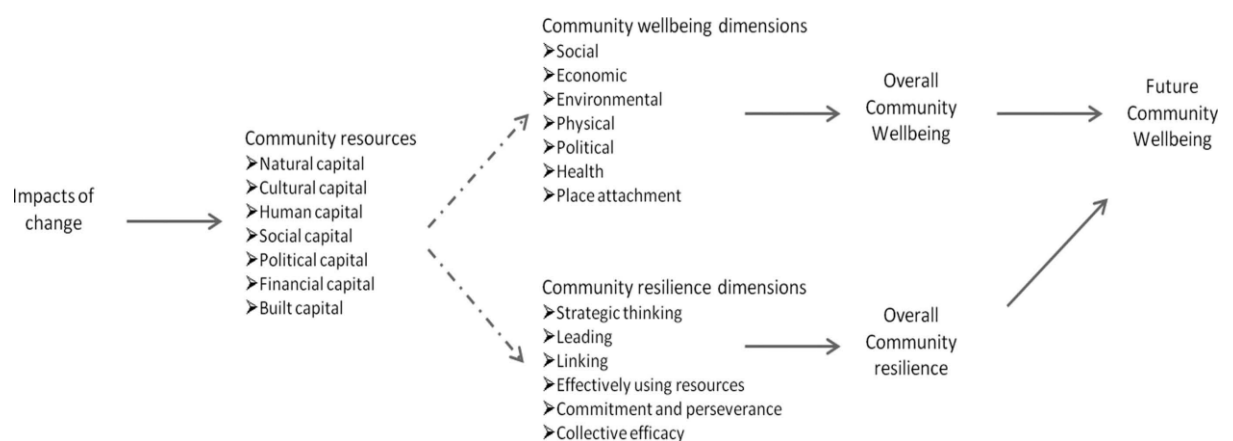


**Table 2: Community Resilience Attributes (based on the findings of Maclean et al., 2014)**

Community resilience-building attribute	Description and key quotations
Knowledge, skills and learning	The ability of individuals/groups to respond to local issues, using knowledge partnerships (i.e., government/business/scientists working together to overcome local problems), enrolling appropriate technology and innovation, and skills development and consolidation (particularly a diverse skill-set appropriate to local contexts, in order to successfully negotiate change). "The dairy industry case study shows how knowledge, skills and learning improved peoples' ability to cope with and adapt to the changes that followed national restructure of that industry ... the success of certain farmers was in coping with the reduced income that initially resulted from the deregulation [was attributed] to their ability to develop and maintain good networks, which enabled them to actively seek new knowledge and information (including financial and business skills for farm management), and the propensity to experiment with technology ... [learning about and developing] new technological innovations to improve farming practice in the region" (p.149).
Community networks	Linked to social capital and encompasses the social processes and activities that support people/groups in a place. "In times of change these networks provide essential support, operationalise community capacity, identify opportunities, and provide a focus for renewed optimism and hope. Local leaders and volunteer workers facilitate effective community networks. While crises and other change events lead people to draw on existing community networks for support, they also facilitate network building by providing a specific focus for individuals and groups to work together" (p.150).
People-place connections	This acknowledges the very strong positive connections people have/make with their environs (their farms, river, homes, workplaces ...). It is closely linked to the ideas of social-ecological systems and land stewardship, which both highlight the strength of and interdependences between humans, society and nature. "Connections to place was evident in diverse sectors, such as tourism and dairy, where environmental stewardship was identified as a key component of management philosophies. Indigenous groups described a long held sense of cultural responsibility to country. The case studies suggest that much of the passion and commitment to protect and preserve cultural and natural landscapes emanates from connection to place. Attention to this aspect of social resilience presents opportunities for sustainable livelihoods development, particularly concerning indigenous land and sea management, ecosystem services, rural production and sustainable tourism" (p.150).
Community infrastructure	Required to support community needs and actions, and includes: diverse services and facilities (including medical and social services), recreation facilities, community centres, transport options, local arts and food markets etc. "Participants reflecting on how they coped with the declaration of the Wet Tropics World Heritage Area in 1985, which terminated forestry, explained the importance of community infrastructure for improved local economic development. This included access to services, including: health care and other community support; as well as the provision of good road infrastructure to encourage new industries and business to the area" (p.151).
Diverse and innovative economy	Highlights the importance of mixed local economies comprising different industries and services, and one which supports new opportunities. It acknowledges the need to keep up with demand-side changes (such as shifts in consumer preferences) with the view that these changes present new opportunities. "A regional economy that is over-reliant on a small number of major industries has an increased risk of impacts from national and global events. Participants observed that that the fostering of a diverse and innovative economy helps reduce vulnerability, and noted that a strong local focus and branding is essential to foster social resilience ... Many participants regarded the ability to do things differently as an essential aspect of the process of adapting" (p.151).
Engaged governance	This resolves around collaborative stakeholder (public, private, community) approaches to regional decision-making and local/regional problem solving. It extends to "...inter- and intra-sector partnerships, cross-scale networks, and science/government collaboration [which] are identified as crucial to solving local and regional challenges. Such initiatives facilitate the sharing of diverse knowledge and experience. Key mechanisms which support the development of engage government responses include inspired leadership, shared vision, appropriate communication, systems thinking, institutional capacity building and institutional learning" (p.152).

**15. McCrea, R., Walton, A., & Leonard, R. (2014). A conceptual framework for investigating community wellbeing and resilience. *Rural Society*, 23(3), 270-282.**

Community resilience may maintain or enhance future community wellbeing. Definitions of community wellbeing and resilience however often overlap, making it difficult to test the relationship between the two. In this paper, the authors define wellbeing and resilience as conceptually different: wellbeing as a state and resilience as a process. In addition community resources are considered as separate from resilience. Based on this conceptual distinction the authors develop a broad conceptual model of the relationship between community wellbeing and community resilience to guide future research (see Figure 2, copied below). The model hypothesises that where communities are facing change the resilience of a community determines the community’s *future*, rather than its *current*, wellbeing – the model predicting that poor wellbeing will trigger a process whereby community resources are utilised by the community in an adaptive response to change, leading to an increase in the community’s wellbeing.



**Figure 2: A conceptual model for community wellbeing and resilience (McCrea et al., 2014, p.278)**

To illustrate the complexity of the relationships between resilience and wellbeing the authors discuss the findings of a case study of a rural community in southern Queensland carried out previously by some of the current paper’s authors. A rapid expansion of natural gas production

in The Western Downs region has led to widespread and rapid change within the communities in the region, including environmental, housing, demographic and infrastructural changes. The study determined that these changes affected different segments of the community differently, partly due to differences in the types and levels of capital each segment could draw upon, resulting in both opportunities and challenges for various segments of the community. The authors conclude the model is useful for both qualitative and quantitative social research, however because of the importance of grounding studies in the communities experiencing change, the authors recommend undertaking an initial qualitative study.

**16. McManus, P., Walmsley, J., Argent, N., Baum, S., Bourke, L., Martin, J., & Sorensen, T. (2012). Rural community and rural resilience: What is important to farmers in keeping their country towns alive? *Journal of Rural Studies*, 28(1), 20-29.**

McManus et al., used the concepts of interactional rural community of place and rural resilience to study the phenomenon of rural decline in Australia. Rural decline is defined as loss of agricultural employment, a phenomenon observed in many developed countries, including New Zealand. The aim of the research was to determine farmer's perceptions of their interactions with their local town and how this may relate to rural resilience.

In Australia, as with NZ, many small towns remote from major urban centres have gradually declining populations in response to economic changes. Such changes are often assumed to inevitably lead to negative outcomes. However it has been suggested that social factors such as a sense of belonging and social engagement can mitigate against changes. The researchers interviewed 115 farmers in two rural regions of New South Wales, Lachlan and Northern Tablelands about their formal and informal interactions and sense of belonging within their local community. The farmers were asked for their perceptions regarding changes over time in a range of 'social fields', including education, health, recreational leisure facilities, employment opportunities, belonging, safety and crime, local environment and housing. A perception that any of these fields is being eroded may lead to a reduction in positive feelings about the community.

Overall, despite experiencing a severe drought, farmers generally did not feel that social and community life was deteriorating. A regression analysis was performed to determine which factors significantly relate to community spirit. The analysis found that in both study areas

perceptions regarding the environment were important for resilience, as were feelings of belonging, the local economy and community spirit. Despite population loss, economic difficulties and a severe drought, social cohesion in the both regions had not been adversely affected. This can be considered to be a form of stable adaptation to change.

Farmers in these two areas participate formally and informally (through socialising) in community activities, including those in nearby towns. Informal socialisation is critical to the community as a whole but also to the individual farmers as a source of support through difficult times. Social connection with the nearest town is also important to farmers: “It is the primary place where they connect with others, offer and seek support, and build up feelings of affiliation and belonging” (p.28).

The implication of this research for rural policy makers is that economic, environmental and social factors are inter-related and policies cannot focus solely on economic or environmental factors: “Resilience is an outcome of people’s perceptions of the physical environment, their sense of belonging and job opportunities. Paying careful attention to farmers’ perceptions of these factors, and particularly how they may be changing over time, is the first step to identifying the potential of small rural towns to be resilient in the face of major, inter-related economic, social and environmental challenges” (p.28).

### **17. Magis, K. (2010). Community resilience: An indicator of social sustainability. *Society and Natural Resources*, 23(5), 401-416.**

Aware of significant change processes currently underway in rural areas across the globe, governments and researchers have become interested in the resilience of *resource dependent* communities. In this paper, Magis reports the findings of research commissioned by the *United States Roundtable on Sustainable Forests* which set out to develop a conceptual and empirically informed definition of community resilience and complimentary measurement instrument. The project comprised (1) an extensive cross-disciplinary literature review, (2) assessment of 13 implementation programmes focused on different dimensions of resilience, (3) ten focus groups, and (4) the analysis and integration of input from 60 project participants and an expert panel called the *Community Resilience Workgroup*. Over the course of the research, the following definition of community resilience was developed (p.402): “Community resilience is the existence, development, and engagement of community resources by community members to thrive in an environment characterised by

change, uncertainty, unpredictability and surprise. Members of resilient communities intentionally develop personal and collective capacity that they engage to respond to and influence change, to sustain and renew the community, and to develop new trajectories for the communities' future." Magis (2010) reports eight primary characteristics that further help to define and operationalise community resilience: (1) Community resources, (2) Development of community resources, (3) Engagement of community resources, (4) Active agents, (5) Collective action, (6) Strategic action, (7) Equity, and (8) Impact.

In her review of the literature (part one the research project and that which is reported in this paper), Magis identifies resilience research streams in the following fields of research: mental health, public health, disaster response, community development, natural resource management and social-ecological systems. Recurrent themes in the disparate resilience literature were identified and incorporated in thinking behind the development of a Community Resilience Self-Assessment tool. Magis notes that *systems disruption and response* tends to frame/characterise the overall resilience discourse. The disruptions in question are often referred to as *stressors*, which might be experienced at the individual, community and/or environmental level. She acknowledges that communities do not always control the conditions that affect them. For example, they may have little influence over the industries influencing the local economy or status of local land ownership. But resilience, she notes, is not about controlling these; it is about the ability of the community to respond to change. This highlights the need to accept the inevitability of change and adapt to live with uncertainty. The key is thriving in a context of change – but what abilities and resources are required?

Magis also documents a fundamental *paradigm shift in understanding resilience*. Much of the early research focused on a systems capacity to absorb disturbance and reorganise in order to retain the same function, structure, identity and feedbacks (e.g., Walker et al., 2004) or social infrastructure (Adger, 2000). This was tied to community stability policies based on the presumption that natural resource agencies could provide stability in communities through stable employment and constant flows of a particular resource (e.g., see Donoghue and Sturtevant, 2007). But studies in social-ecological systems suggests resilience not only includes sustenance and renewal – but also occasional *transformation*, with some changes pushing systems to thresholds which require significant change – not minor adaptations (Smit and Wandel, 2006). From this vantage point it is the disturbance that creates the opportunity for change. So, the notion of system stasis has been replaced by the notion of

adaptive renewal cycles stimulated by change. “This more complex rendering of resilience shifts attention from controlling change in presumably stable community systems to managing the capacity of dynamic communities to cope with, adapt to and shape change” (p.404). This highlights the need for communities to develop the capacity to respond to, create, survive in and thrive in change.

In her review of the literature, Magis draws attention to *the active agency of communities in community resilience*. This perspective shows that resilience is not just a reorientation to change, but is also related to a community’s ability (or agency) to take planned action and effect change. In the stability model it was generally the government that took responsibility for the well-being of communities who were relatively passive in this process; now communities are (expected to be) primary and active agents, utilising their local/traditional knowledge, local resource base and their understanding of the community. Thus active agency has become a central plank in resilience thinking. Of course, a community’s agency depends on the external and internal resources that they can draw on in response to change. Economic resources are important, but Magis notes that they alone will not be enough. They must also collectively draw on social, cultural, human, political, natural and built resources to strategically respond to change. Thus, resilience is about action taken as much as it is about a community’s capacity to act.

Magis next focuses more closely on *community capitals*, which she notes is a prevalent theme in the rural development and community studies literatures. These are community resources that are strategically invested in collective endeavours to address shared community objectives. The idea of community capitals – human and natural – emerged to counter-balance the dominant use of economic paradigms to measure social well-being. A particularly important non-economic resource with respect to resilience is *social capital* – the trusting support networks which form through social interaction in communities. High stocks of social capital can manifest ability and willingness of community members to participate in actions directed at community objectives via their involvement in collaborative networks, groups and community organisations. Bonding, bridging and linking are the important types of social capital. Bonding refers to the close ties that build cohesion within groups. Bridging refers to the loose ties between groups connecting people that may not otherwise interact, exposing them to diversity and enhancing their ability to work with others, expanding their resource base and their identities. Linking, defines the vertical relationships between groups and those with power and authority, which is particularly important in community’s that are

poor in resources; the more they can link with decision makers, the greater their access to resources and to have their voices heard.

Magis points out considerable overlap between the ideas of community resilience and community capacity (particularly the use of community resources for enhanced well-being, and the agency of communities), the former emerging from systems thinking and relating specifically to change and change responses (it exists because of change). Community capacity differs in that it can be developed for virtually anything – all matters of community development. Resilience is simply about the capacity to adapt to change. While the reporting of Magis is largely focused on teasing out key resilience metrics from the literature, in order to develop a community resilience measurement instrument, she also provides an overview of the outcomes of the roundtable focus groups involving a variety of organisations that share a commitment to and expertise in forest management. Participants included indigenous groups, NGO's community organisations and universities. The sessions were designed to engage participants in creative brainstorming with respect to the community resilience measurement tool, ensuring that the tool was grounded in both theory and experience. The result was a co-created definition of resilience and consensus with respect to eight key dimensions of community resilience (actionable, observable and measurable). A summary of the eight key dimensions of community resilience are presented in Table 3.

**Table 3: Dimensions of community resilience (Based on Magis, 2010)**

<b>Dimension</b>	<b>Description/assumption</b>	<b>Sample Metrics</b>
Community resources	Communities have resources spanning that allow it to respond to change spanning the capitals: natural, human cultural, social, financial/built, and political.	How well people understand opportunities/limitations of the natural environment surrounding their community To what extent community leaders are networked with resources outside the community To what extent community members believe that change is inevitable and that the community can adapt
Development of community resources	Community resources are dynamic – the resource base can be expanded (depleted or destroyed). Some left unused can diminish while overinvestment in one can deplete others. Developing resources requires action, not just the capacity to act.	New kinds of businesses and employment opportunities developed in the community over the last ten years Preparedness of youth with important work habits and to become involved citizens (e.g., voting, participate in civic and social organisations, take pro-change action, advocate ideas) The extent to which communities affected by change attempt to keep things the same or try new ways of doing things
Engagement of community resources	When community resources engaged toward a shared community objective the community's capacity to reach that objective can increase. The process can further develop the resource, create new resources and increase their productivity. Resources utilised for personal or private gain may undermine resilience.	The effectiveness of community government in dealing with problems facing the community The extent to which community organisations contribute leadership and volunteers to community endeavours The extent to which communities affected by change generate ideas to address the change, that are new and that involve recombining resources in different and creative ways
Active agents	Community members are active agents in community resilience. While not able to control exogenous forces, they can influence well-being and take leadership. The communities must be seen as key stakeholders in resource debates and must participate in decision-making processes	Community members' belief in their ability to affect the community's well-being Community members involvement in various groups and events The community's self-reliance in addressing major issues and local changes
Collective action	Community resilience is developed through collective effort to accomplish specific community objectives (requiring participation and leadership from throughout the community.	The extent to which community leaders facilitate collaboration between groups to work on community objectives The extent to which community decision-making processes engage diverse perspectives and reflect cultural differences The extent to which people from diverse groups share resources, knowledge and expertise when facing change
Strategic action	Community resilience is developed through conscious deliberation, planning, implementation and learning. Community develops itself internally and moves towards specific strategic visions and objectives.	The extent to which information on community resources is used in planning community endeavours The extent to which local planning processes generate a community wide commitment to a common future The extent to which community members look outside the community to find resources to support its endeavours Opportunities for people to share lessons, unresolved questions, ideas and innovations from their experiences
Equity	Refers to equal access to/distribution of society's benefits and costs, and social justice for all economic and social groups, as well as equality within and between generations.	Access of groups to the community's natural resources Involvement of various groups in in the planning and leadership of the community The extent to which community organisations welcome and include various groups
Impact	Community resilience is evidenced in the community's successful response to crisis/opportunity/change, its implementation of plans, its development of new trajectories/futures for itself, and its adaptation to changes within and outside. Importantly, community resilience is not about controlling all the conditions that affect it. Rather, it is about thriving in those conditions.	The changes in participation and collaboration overtime The changes in number and variety of external contacts overtime Changes in the community's capacity over time to respond to change, develop new futures for itself, and develop and implement community-centred plans Changes in the community's resources over time



**18. Martin, R., & Sunley, P. (2015). On the notion of regional economic resilience: Conceptualization and explanation. *Journal of Economic Geography*, 15(1), 1-42.**

Martin and Sunley discuss regional economic resilience. “Regional” is defined as any area with a defined economic region including urban areas. It does not have a rural focus per se. The authors claim the rush to apply resilience thinking has raced ahead of our understanding of the concept; “there is no *universally agreed definition...no generally accepted methodology* for how the concept can be operationalized and measured, empirically.” (p. 3). They suggest three main types or definitions that they consider are commonly used for resilience (see Table 1, p. 4): resilience as ‘bounce back’ from shocks; resilience as ‘ability to absorb’ shocks; and resilience as ‘positive adaptability’ in anticipation of, or in response to, shocks. The three types originate from the physical sciences, ecology and psychology respectively. There is considerable overlap between the three types. There are however problems in applying the idea of resilience to regional economies, as summarised in Table 2 (p. 8) and discussed in pages 9 to 12. “Whatever the field of application, the study of resilience begs a four-part question...resilience of what, to what, by what means, and with what outcome?” (p. 12). The authors outline a number of alternative approaches to the measurement of economic resilience in Table 4 (p. 17): Case study based; Resilience indices; Statistical time series models; and Causal structural models, giving examples from the literature of examples of each.

**19. Matarrita-Cascante, D., & Trejos, B. (2013). Community resilience in resource-dependent communities: A comparative case study. *Environment and Planning A*, 45, 1387-1402.**

Rural restructuring has had a significant effect on many natural resource-dependent rural communities. In response, some communities have sought to develop new service based economies, incorporating tourism, for example, into the mix of industries which define the area and which might make it more resilient. Two changing resource-dependent rural communities are the focus of the qualitative research, both of which are responding differently to their affected circumstances (one exhibiting very low levels of community resilience, the other high). They find community resilience is highly dependent on: (1) equity of resource distribution and access to financial resources, (2) the quality of relationships between residents who live in the community – as well as with newcomers, (3) the ability of institutions to adapt in order to operate efficiently in the light of change, and (4) the

entrepreneurial drive of community members. Specific factors affecting residents' *organisational capacity* include: community agency and a desire to act collectively (not for self-interest); having common good goals which are put into practice; working collaboratively for the benefit of the community; a history of participation in community organisations; and tolerance and acceptance among long-term residents and newcomers. Specific factors affecting institutional capacity to reorganise and adapt to change include: nature of established local growth strategies; ability of local authorities to deal with the pace of change and their level knowledge of the change process; local government links with national level authorities; and leadership capability. While many factors seemed to affect community resilience "the organisational capacity of residents seem[ed] to be a determining factor" (p.1399).

The authors note that the terms vulnerability and community resilience have become much used concepts in the social science research literature on rural community change (sometimes linked or used interchangeably) and seek to draw a distinction between the two ideas. Drawing on the much cited work of Cutter et al. (2008) they purport that vulnerability relates to the qualities of a social system that create the potential for harm, and are evident in a place before an event. Research on vulnerability tend to explore the conditions that make a community fragile. Among them include: poverty; inequality; marginalisation; lack of infrastructure; lack of information; low educational levels; limited or poor governance. Community resilience, by contrast, focuses on the capacities that allow social systems to return to a normal state or create a new trajectory after an event. Researchers are interested in the different factors that promote collective adaptive behaviour within communities. Reviewing the literature, the authors identify a range of social, economic, cultural and institutional factors which influence/affect resilience. Among them include: knowledge and education; citizen involvement; communication and organisational skills; network development capability; diversity of local economic activities; access to credit (so locals can participate in new forms of income generation); planning abilities; climate etc. In sum, they argue that resilience is a complex, multi-level and multidimensional 'process'. (This is important as some researchers frame resilience as a state of being).

The authors note that while a significant number of researchers have sought to conceptualise resilience, few have sought to empirically test their ideas. Those studies which have been conducted in the field have generally sought to observe and characterise the forces of change and their outcomes, with much less focus on how individuals in

communities work collectively to recover from adverse events (i.e., examining what people actually do in the response/recovery phase). They note a very significant interest among disaster and natural hazards planners but much less work is focused on community responses to slow-burning processes of change or 'stressors', such as those experienced by resource dependent communities.

They argue that a high dependency on local natural resources makes a community more susceptible to a wide range of stressors, including: shifts in resource demand resulting from economic and/or policy changes; industry fluctuations; weather events and climatic change; shifts in technology creating less need for local labour; and shifts in level of control of resource extraction to extra-local corporations. While detailing the nature of the community response is critical, the authors also argue that fully understanding the nature of stressor is also vital. "Economic restructuring is a process that takes relatively more time to effect the community in comparison with a natural disaster. The effects of this transition spread to multiple dimensions of the community, some at different paces. Thus, an understanding of community resilience requires an understanding of the nature of the stressor" (p.1399).

## **20. Oncescu, J. (2014). The impact of a rural school's closure on community resiliency. *Leisure/Loisir*, 38(1), 35-52.**

Oncescu studied the effect of closure of the local school in the rural village of Limerick, Saskatchewan, Canada on the school's community. As a result of a complex interplay of social and economic changes, many resource-based rural communities in Canada are experiencing declining populations, particularly in the younger age groups. This is leading to rural school closures, threatening the viability of quality of life of some rural communities. Research has demonstrated the positive effects of rural schools on community resilience but little research had been done on the effects of school closure on rural community resilience.

Oncescu notes that there are many definitions of community resilience but that all focus on a community's ability to adapt to change. Research has identified a range of community strengths that influence community resilience, including social networks and support; social inclusion; sense of belonging, leadership, acceptance of change, the natural and built environment, and a community's infrastructure and social services. Oncescu's research uses Kulig et al.'s (2008) model of community resilience, which was developed through study of a series of resource-based communities that remained resilient despite a number of serious

economic crises. The model has three components: first, collective, reciprocal interactions (such as networks and community problem solving); second, a sense of community; and third, community action as a result of a cohesive community which develops from the first two components.

Oncescu's single case qualitative study used semi-structured interviews and focus groups and interviewed 22 adult residents of the village. Analysis of the data obtained showed that Limerick's school had strengthened the community's resilience due to the community interactions facilitated by the school's community recreation activities and other events (component one of Kulig et al.'s model). It also helped develop community cohesiveness, sense of belonging, trust and sense of community (Kulig et al.'s second component). In addition the school's presence helped develop two other components Kulig et al. (2008) consider to be important for community resilience, local leadership and creative problem solving. As a result after the school was closed the community was able to collectively develop a new, alternative recreation facility using the old school building. This facility and its associated recreational activities helped to maintain community resources and social cohesion and connectedness, demonstrating the community's resilience.

**21. Paniagua, A. (2013). Farmers in remote rural areas: The worth of permanence in the place. *Land Use Policy*, 35, 1-7.**

This case study analyses the strategies of farmers who have continued to live and farm in two remote, depopulated rural areas of Spain during times of change. The study used a qualitative approach, based on biographical interviews with farmers living in these areas. The researcher analysed the processes the individual farmers used to adapt to change by analysing the farmers' actions, strategies and discourses from the sociocultural and ethical perspectives of the farmers themselves.

Those living in remote rural areas experience various changes, such as new activities or populations, which can lead to the transformation of agriculture and loss of farming jobs. Locals can however adapt to or resist such change. One resistance strategy is to remain living and farming in the area by adapting to change. Thus, "The sum of these processes of change and resistance in a place can result in the development of processes of resilience by farmers in marginalised and depopulated areas, and the gradual adaptation in the long-term to a new way of life and a new professional strategy" (p.2).

Paniagua identified a variety of discourses and strategies that were associated with permanent residence in the two areas studied: no long-term strategy (“We had to work somewhere”; “gradually you become more and more involved. Then you find it difficult to leave” “the ones who had no choice stayed here”); anti-urban sentiments; liking for a certain lifestyle; family traditions; liking being one’s own boss; having made a significant financial investment; benefits of access to subsidies (the CAP provided an average of 30% of the farmers’ income); inheritance of family property (in some cases no family members are available to inherit the farm which would be abandoned and become overgrown after the incumbent eventually retired); increased mechanisation and professionalism; amalgamation of land and reduction in the number of farmers; simplification of farming systems; relocation of the farmer’s residence to the nearest provincial capital and commuting to their farm.

The strategies adopted by the farmers interviewed varied considerably depending on the unique characteristics of the area they farmed in. Few of the strategies adopted however plan for long-term permanence; they are, in the main, a series of constant adaptations to change with the aim of achieving stability and survival. Paniagua predicts in the longer term there will be a decrease in permanence due to factors such as possible abandonment of farms and villages.

**22. Skerratt, S. (2013). Enhancing the analysis of community resilience: Evidence from community land ownership. *Journal of Rural Studies*, 31, 36-46.**

Resilience has become a catchphrase in the resilience literature, and is particularly popular currently among disaster response researchers. The interest tends to centre on the idea of ‘bounce-back’ – how effectively different communities respond to shock and their ability to return to relative normality. Skerratt, however, calls for more attention to be given to proactive human agency, as opposed to reactive bounce back. For Skerratt, these two types of resilience give rise to the idea of a resilience spectrum. Through an analysis of 17 community land trusts in Scotland, Skerratt shows how people-in-place do get involved in processes of proactive change in their communities, aiming to build their skills and capacity in the constant of constant (slow-onset) rural change (rather than simply responding to shocks). In summary, Skerratt suggests that the dominant discourse of shock-response is constraining resilience thinking, as it “bypasses evident proactive community processes and wider adaptability outcomes” (p.36). Skerratt calls for more questioning and critique of the

concept of resilience, in order to be more accurate with its use, incorporating, for example, other social science concepts, such as social capital.

**23. Roberts, E. & Townsend, L. (2015). The contribution of the creative economy to the resilience of rural communities: Exploring cultural and digital capital. *Sociologia Ruralis*, Online advance publication. doi: 10.1111/soru.12075**

This paper examines the contribution of creative practitioners ('creatives') in Scotland to rural community resilience. The rural creative economy features craft-based and traditional local culture plus new creative industries such as web design. Creative individuals and businesses are attracted to rural areas by the lifestyle the areas offer and "place strengths" such as a strong regional cultural networks and economies. Rural creatives build cultural capital and it is becoming recognised that cultural capital is important for rural community development. The contribution social, economic and natural capitals make to resilience is recognised however the value of cultural and digital capitals has been underestimated. Changes in one form of capital can negatively affect other capitals, leading to a change in resilience. This study investigates how creatives are using internet-enabled digital technology and how this affects cultural capital and rural community resilience. The researchers conducted 15 semi-structured interviews with 15 creatives in rural Scotland and analysed their responses in relation to four pertinent themes from previous resilience research: adaptive capacity; cultural capital; leadership and resourcefulness; and ripple effects.

- *Adaptive capacity*: Rural creatives are often dependent on information and communication technologies for survival of their businesses however rural broadband is often poor quality. Creatives were found to use a variety of strategies to compensate for at times poor internet connectivity, to allow them to continue to live and work in rural areas.
- *Cultural capital*: Cultural capital is defined as "the benefits derived from cultural goods, activities and participation, which can boost the prestige and competence of a particular community, having both material and symbolic value for those who can access them" (Roberts and Townsend, 2015, p.11). This includes the establishment of tourist trails, community arts, creative hubs and clusters. Creatives formally and informally add to their community's cultural capital.
- *Leadership and resourcefulness*: Rural creatives demonstrated leadership through their organisational capacity, sense of responsibility toward their rural community, and entrepreneurial skills.
- *Resilience ripple effects*: Cultural activity can have 'spill-over' effects such as increased tourism and a source of 'community glue'.

In addition to the above, creatives were found to contribute to community resilience in a variety of other ways including contributing to social capital by extensive networking; increasing economic and socio-demographic diversification; acting as community leaders; and due to their developing a strong sense of place.

#### **24. Scott, M. (2013). Resilience: A conceptual lens for rural studies? *Geography Compass*, 7(9), 597-610.**

Scott examines the potential of resilience thinking for opening new perspectives within rural studies, both in terms of providing an analytical lens for understanding rural places and as an approach to “re-framing” rural development theory and practice. Scott identifies and describes two contrasting approaches to resilience thinking: (1) equilibrium and (2) evolutionary.

- *Equilibrium resilience (or engineering resilience)*: This way of thinking focuses on the ability of a system to absorb shock and disturbances without experiencing changes to the system (refer Holling, 1973). Here the measure of resilience is both the resistance to disturbances and the speed by which the system returns to equilibrium. Common in disaster management, particularly responding to hazards or disease outbreaks where the ability to “bounce-back” to a pre-disaster state with speed is the preferred outcome. Applications extend to analyses of economic shock (and the ability of communities to return to a pre-shock state through local action, industry and policy responses), and in regional studies, the ability of an economy to maintain a pre-existing state in the presence of an exogenous shock, or returning to a previous level of growth or rate of output or employment. A criticism levelled at the approach is whether returning to normal or accommodating shocks is desirable after a disturbance, given that it may be vulnerabilities/dysfunctionality in the ‘normal’ system itself that is producing risks (see Davidson, 2010). So the approach does not seem to allow for reform or transformation as a response to a crisis. (This normalises a crisis –it’s just a natural cycle).
- *Evolutionary resilience*: this approach to resilience thinking rejects the idea of a single-date equilibrium or return to normal. It instead highlights ongoing change processes and adaptive behaviour and adaptability. The key point is that development doesn’t proceed along a single path, but along multiple pathways (some of which may be suboptimal). Evolutionary resilience emphasises adaptation as a response to shocks and disturbance; it is arguably a more optimistic and potentially more radical form of resilience where system transformation is a possibility through individual or collective action characterised by a search for alternative development pathways. The key advantage of the evolutionary approach is its potential to reveal.

Scott (p. 601) summarises the “key features” of the equilibrium and evolutionary approaches to (rural) resilience, as presented here in Table 4:

**Table 4: Key features of equilibrium and evolutionary resilience (Scott, 2013)**

Equilibrium resilience	Evolutionary resilience
'Bounce-back' resilience.	'Bounce-forward' resilience.
The ability of a system to accommodate disturbances without experiencing changes to the system.	The ability of a system to respond to shocks and disturbances by adaptation and adaptability.
Emphasises a return to a steady-state after disturbance – 'business as usual'.	Emphasises transformation or path creation in response to disturbances – 'do something different.'
Short-term response to shocks and disturbances.	Long-term response, emphasising adaptive capacity.
Prominent in the literature surrounding disaster management, managing geo-environmental hazards.	Prominent in the literature surrounding regional economic development, spatial planning.
Conservative approach, naturalising man-made crises and depoliticising responses.	Recognises the politics of resilience, involving normative and value judgements.
A reactionary tool, reinforcing existing power structures.	A critical tool, enabling reform.

In the context of rural research, Scott (2013, pp.600-601) believes that the advantage of the evolutionary perspective is that it works to reveal:

- The importance of both endogenous and exogenous shocks intertwined with 'the unfolding of broader, longer-run and slow burn processes' (Pike et al., 2010, p.63) including long term socio-spatial and economic restructuring processes.
- The importance of path dependencies in shaping resilience, adaption and adaptability, which may be weakened by entrenched path dependencies.
- The potential of 'lock-in' development paths to compromise place resilience, whereby formal and informal institutional culture and relationships may inhibit adaptive behaviour and capacity. Similarly, the process of 'de-locking' may be central in path creation and transition towards a more sustainable future.
- The need to blend the local with the extra-local in building resilient places – in other words, deploying local assets within the context of global circuits of capital while competing to attract extra-local resources.

Scott identifies two key themes in the resilience research which has featured in rural studies. The first he labels *Farming and its role in social-ecological* resilience (citing Darnhofer et al., 2010; Hudson, 2010; McManus et al., 2012, and Wilson, 2010 and 2012a). The second theme he labels *Community resilience within rural localities* (citing Graugaard, 2012; Franklin et al. 2011; Wilson 2012b). Overall, Scott's review of the literature finds considerable overlap between the themes emerging in resilience and the more established literature on rural



development theory and practice: resilience emphasises adaptive capacity which are very similar to capacity building ideas in rural development. He also notes that the emphasis on mobilising both local and extra-local resources in resilience thinking is similar to debates about neo-endogenous development (which recognise the limitations of local-only strategies); in essence, the local must interact with the extra local. So resilience thinking for Scott is not a “clear break” from rural development (p.603).

Nevertheless, Scott purports that the notion of resilience is contributing to rural studies in two key ways. First, it is providing *alternative analytical methods and insights for rural studies practitioners*. The evolutionary analytical perspective, for example, is shedding new light on the role of path dependencies in place development and the presence of ‘locked-in’ development trajectories based on entrenched interests and institutional apathy. The evolutionary approach also draws our attention to long term (and fundamental) processes of change which may be just as important as, but hidden by, attention paid to high profile shocks. A further analytical perspective provided is the identification of place-assets or attributes that contribute to weak or strong resilience or vulnerability. Like Wilson (2010), Schouten et al. (2012) identify place-based characteristics associated with strong resilience, which can be further applied as a tool to assess the extent that public policies enhance or erode rural resilience in the face of unpredictable events. Assessments of vulnerability (the flipside of resilience) are also important – as useful tool for assessing the extent to which individuals, groups and places at risk from exposure to shocks and disturbances, but *also* for assessing vulnerability in trajectories based on based on public policy interventions or economic scenarios (e.g., the rising cost of fuel on households). Such work also highlights the need to blend the local and global – the need to analyse rural places in relation to an interdependent set of socio-spatial, economic, institutional and environmental systems.

The second way resilience thinking is currently contributing to rural studies is by providing an *alternative policy narrative for rural development and practice*. The evolutionary approach in particular raises issues relating to institutions, leadership, social capital, and social innovation and learning (Davoudi, 2012) – people act consciously when faced with crisis, enabling opportunities for performing bounce-forward resilience through individual, collective and institutional action. In this regard resilience thinking overlaps with existing debates on deliberative modes of policy-making as a means to develop collaborative stakeholder networks for adaptive governance. Through such activities, rural development practice can embrace the politics of resilience to explore and work through the central challenge of

addressing *the resilience of what, to what and for whom?* In this sense, resilience provides a strategic lynchpin as collaborative networks explore new and alternative trajectories and path creation. “From this perspective, a (renewed) focus on capacity building in rural development practice should be viewed as a key goal in rural place-making strategies alongside more tangible benefits, such as job creation” (p.605).

**25. Steiner, A., & Atterton, J. (2014). The contribution of rural business to community resilience. *Local Economy*, 29(3), 228-244.**

*What role do private sector enterprises have in the building of resilience in rural communities (in Scotland)?* To answer this question, the authors combine two case studies and secondary data analysis. The analysis shows how rural enterprises contribute to economic and social development in communities and how this extends the building of resilience in rural locations. The analysis of secondary data, mainly quantitative, provides evidence of the increasing role of private enterprises to overall employment in rural Scotland. It also highlights the importance of small to medium enterprises (SMEs) in employment creation. Particularly important to the notion of resilience is the role of private investment/enterprise/entrepreneurialism in increasing the diversity of rural locations. The analysis of case study data, (mainly qualitative), provides insights into how the private sector may also contribute to the social and economic resilience of small rural towns in Scotland by enhancing the quality of life of residents and communities.

**26. Steiner, A., & Markantonio, M. (2013). Unpacking community resilience through Capacity for Change. *Community Development Journal*, 1-19.**

“Measuring resilience is problematic and there is no universally agreed measurement tool” (p.5). While regarded by some commentators as a ‘fuzzy’ concept (Davidson, 2010) and difficult to define (Wilson, 2012), the term resilience has, over the last 15 years, been the buzzword in social science research and remains a catchphrase in policy documents/statements and planning debates. Put simply, resilience refers to the capacity of individuals and communities to respond to change, whether in the form of an immediate/unanticipated shock or a more discrete slow-moving/slow-onset process, such as rural depopulation or aging, growing unemployment, political change or loss of key services such as a school (Woods, 2006). When studying resilience at the community level, Steiner and Markantonio argue that it is crucial to understand the particulars of the issue(s) facing a

rural community, including regard for the characteristics of the local setting and its social and economic composition. Drawing on Fournier (2012), Steiner and Markantonio (p.3) purport that “resilient communities are (pro-)active and capable to help themselves, suggesting that they are empowered and able to influence local life.” Key to the concept of community resilience, therefore, are the notions of self-organisation and the capacity to learn and adapt in the changing environment. A central concept in community resilience research is capital, of which there are main types: social, economic and environmental; in combination, these capitals bind communities together, helping them function well and, by extension, making them less-vulnerable to shocks (Steiner and Markantonio 2013; Wilson, 2012).

In their reflections on the notion of resilience, Steiner and Markantonio (2013) present an analysis of the Capacity for Change (C4C) project implemented in Scotland under the auspices of the LEADER programme. C4C specifically targeted ‘under-resourced’ rural communities – those which in recent years had lost some, or the vast majority of their local services. Notable also was that these rural communities had not applied for LEADER grants for community-run projects, which might support/enhance local rural development. A goal of C4C was sought to empower these communities, so that they might become more entrepreneurial and resilient. As part of that project, a three stage mixed-methods analytical framework was developed and tested for measuring rural community resilience. The research was carried out in 2011 and 2012. The first stage of the project involved desk-top research unpacking the concept of resilience, comprising a review of the research literature, relevant policies and community resilience toolkits. The outcome of the analysis was recognition of the multidimensional nature of the term, with work able to be differentiated between individual and community levels of resilience, and across economic and social domains. Another key outcome was a detailed analysis of existing resilience measures. Helpfully, they compiled the strengths and shortcomings of each measurement tool in a table, replicated here as Table 5.

Stage 2 involved scoping studies in 6 small rural villages in two regions (Dumfries and Galloway) with the aim of developing a profile of each town and an understanding of what resilience meant for people in each. On the ground work involved focus groups with local community councils. A mix of successful villages (where there was evidence of active citizenship) and less successful villages (defined by a high level of service withdrawal/lack of engagement in community projects) were selected for study, “in order to get a better understanding of what does and does not constitute resilient communities” (p.6). Stages 1

and 2 resulted in an evaluation model, comprising (1) 20 Likert style research questions exploring individual and community resilience in both social and economic terms, and (2) 12 qualitative (open ended and exploratory) questions.

The tool, which brings together a number of already tested frameworks adapted to local context(s), shows that (rural) resilience is multi-scalar, multi-sectoral and interdependent; some communities are particularly strong and/or particularly vulnerable in different dimensions of resilience. As such while the application of the tool derives an overall resilience score, the researchers suggest it is more useful/efficient to explore different resilience components so that specific weaknesses can be identified and targeted for strengthening. The study also shows that locations with more diversified services and resources are (in the view of their residents) more resilient; the causality of this relationship is not well-understood and the researchers call more attention to be given to this matter. The authors (p.15) provide a cautionary note (and interesting questions) about the appropriate level of external facilitation with respect to resilience building in rural towns identified as 'less-successful': "Possibly, by offering external support to 'weaker' communities, a 'dependency culture' may be promoted. On the other hand, resilience does not necessarily happen automatically. It depends on a number of factors, some of which individuals and communities can influence and others that remain out of their control. Another question that emerges is whether there is a particular level of external facilitation that helps to build the capacity of a community and another level of 'over-support' that can weaken a community by disempowering its local members who remain passive in a moment of crisis or change. It is important, therefore, to consider and identify a balance between the role of a worker/project manager supporting community initiatives and the wider aspects of community participation and self-determination".

The authors suggest that in a world where communities are being asked to do more for themselves (underpinned by service withdrawal) resilience can be seen as a tool of transferring responsibilities from the state to society. Policies to which implicitly carry this message suggest perhaps that all communities are capable of solving local challenges, but readiness, as this study shows, across rural communities/locations may vary.

**Table 5: Selected resilience models, their strengths and shortcomings (Steiner and Markantonio, 2013, p.7).**

<b>Models of evaluating resilience</b>	<b>Strengths</b>	<b>Shortcomings</b>
Building resilience in rural communities – eleven components of resilience (Hegney et al., 2008)	Various elements of community resilience Individual, group and community levels	No quantification of community resilience Qualitative examples of community resilience not easily compared across communities
Measuring and modelling community resilience (Forgette and Boening, 2011)	Quantitative value of community resilience Measuring ‘change’ over time Compare resilience between different locations	No clarification on how to collect data Resilience questions might be subjective
First Impression Community Exchange Programme (Centre for Community Economic Development, 2010)	‘External and independent’ assessment of strengths/shortcomings of villages Collaboration between similar communities Engages people who might bring change in their communities Evaluation is not expensive	First impression (i.e. the core component of the concept) might not be accurate and can give wrong impression Recruitment of ‘first impressioners’ might be challenging Community members hesitant to hear critique Lack of follow-up phases
Five Ways to Wellbeing (Aked et al., 2010)	Universal target group Simplicity of the model	Refers only to an individual level Does not quantify level of resilience Does not state how to collect data
Community resilience self-assessment (Magis, 2010)	Quantitative value of community resilience Easy method measuring ‘change’ in communities Enable resilience comparison between communities	Data collection is based on key informants. Response might not be representative Subjectivity of key informants might lead to false results
Community capacity-building (Noya and Clarence, 2009)	Tangible outcomes (e.g. GDP) Measure aspect of change (e.g. unemployment rate)	Difficult to access data at community level Changes might be observable only for a long period of time Difficult to prove source of outcomes Investigates largely economic aspects and omits social factors

**27. Weichselgartner, J., & Kelman, I. (2014). Geographies of resilience: Challenges and opportunities of a descriptive concept. *Progress in Human Geography*, 1-19.**

Resilience has been replacing sustainability as the main currency in academic and policy discourses replacing sustainability. The term has links to vulnerability and adaptive capacity (Gallopín, 2006) and has become a key concept in hazard reduction research (Klein et al., 2003) and planning (Porter and Davoudi, 2012). The authors suggest that the “resilience renaissance” cuts across research disciplines and now sits firmly at the interface between science, policy and practice. On reflection, the authors suggest that the term is elastic and the concept flexible ... “an all-encompassing multi-interpretable idiom” – a unifying concept and political vision. They also note, however, of the danger that the term becomes an empty signifier that can be filled with any meaning to justify a goal. The authors provide a range of resilience definitions, signposting the common thread across disciplinary boundaries i.e., the ability of materials, individuals and organisations and entire social-ecological systems (from critical infrastructure to rural communities) to withstand severe conditions and to absorb shocks. They trace the terms origins to the field of ecology and the notion of “bounce-back” i.e., the measure of the persistence of a system and of their ability to absorb change but still maintain the same relationships between variables and populations. The more resilient a system – the larger the stress it can absorb without shifting to an alternative regime or collapse. While the term has its origins in so-called bounce-back thinking, resilience commentators are now talking about anticipation, capacity and capability – doing better than before or “bouncing forward” (Manyena et al., 2011) – a more proactive and transformative framing of resilience. The authors also comments on recent applications of resilience thinking, noting that governments around the world have been active in developing programmes and plans that aim to guide cities, communities and authorities towards achieving resilience. Put simply, this is done by: reducing exposure and sensitivity to shocks and by increasing adaptive capacity. Much of the applied work has been in the space of disaster reduction, involving campaigns aimed at readying communities for possible shocks and increasing their capacity to respond via task-like checklists i.e., what to do in the event of a disaster (but not assessment tools for building resilience).

28. **Wilson, G. (2010). Multifunctional ‘quality’ and rural community resilience. *Transactions of the Institute of British Geographers*, 35(3), 364-381.**
29. **Wilson, G. (2012). Community resilience, globalisation, and transitional pathways of decision-making. *Geoforum* <http://dx.doi.org/10.1016/j.geoforum.2012.03.008>.**

Wilson, in a series of published works, seeks to connect resilience thinking with his previous work on multifunctional agriculture. Through the lens of ‘the capitals’ (economic, social and environmental capital), he considers the place-based characteristics that contribute to weak or strong resilience, while also exploring its flip-side (vulnerability). Wilson identifies suboptimal ‘locked-in’ development pathways in rural systems (e.g., monofunctional production pathways) and argues there are limits to how the local level can shape and influence alternative path creation processes, re-emphasising the need for mobilising a combination of local and extra-local resources in building more resilient futures. Interestingly, Wilson (2012b) also highlights the limitations of localisation efforts in resilience efforts and its relationship to globalisation processes. He assesses the mix of local and extra-local forces in enhancing or weakening community resilience, suggesting that both an over-dependency on local resources and an exposure to “over-globalisation” may weaken community resilience, arguing that there is limited evidence that relocalisation processes offer a transitional pathway to sustainable rural development.

30. **Woods, M. (2014). Family farming in the global countryside. *Anthropological notebooks*, 20(3), 31-48.**

The (Western) family farm is an apparent anachronism in the context of a largely globally integrated, large scale, industrialised and corporatised agri-food system. Despite a decline in numbers many family farms have however survived by adapting to change. Woods examined this phenomenon by reference to a number of case studies he had been involved with in the previous decade in the United Kingdom, Australia and New Zealand. He begins by discussing the changes and challenges globalisation has imposed on these family farmers and then outlines three broad adaptation strategies adopted by family farmers in these countries that have enabled them to survive, and in some cases thrive, in a globalised environment: diversification; mobility; and resistance.

In his analysis Woods adopts a relational perspective, which “crucially allows for rural actors to have the capacity to influence and shape globalisation outcomes” (p. 32). On-farm effects of changes imposed by globalisation and modernisation cited by Woods include: changing farm labour requirements, gender roles and financial viability due to increasing use of mechanisation and technologies such as agrichemicals; and alternative career options for farm children which has reduced farm inheritance.

The first broad group of adaptation strategies included farmers who diversified their farm activities (e.g., New Zealand farmers who moved from sheep production to dairying, or to farming more ‘exotic’ species such as deer) or who diversified their household income sources away from solely agriculture. For example, one study in the Waihemo District of the Waikato found 67% of family farms were involved in some non-agricultural income generation. Such diversification was usually a survival strategy however some entrepreneurial farmers undertook diversification to grow their business by taking advantage of opportunities that globalisation offered. Such “globally-engaged” farmers adopted a more corporate approach however remained family firms at heart. The second group of adaptation strategies was where a farmer moved their farm business to another more profitable location, either in their own country or in another country. The third type of adaptation strategy family farmers have used is resistance. This is typically carried out by joining protest groups such as the Family Farm Defenders in the US. Such protests have been largely futile in having any significant influence. These three types of responses involve only a small number of individual farmers; most farmers respond to globalisation with more modest adaptations sufficient to enable them to survive in the short term, such as selling produce at the farm gate or selling some of their production to supermarkets. Woods asserts that such actions may not continue to save such farms longer term.



# FULL REFERENCE LIST

- Adger, W. N. (2000). Social and ecological resilience: Are they related? *Progress in Human Geography*, 24(3), 347-364.
- Amundsen, H. (2012). Illusions of Resilience? An Analysis of Community Responses to Change in Northern Norway. *Ecology and Society*, 17(4), 46.
- Amundsen, H. (2013). Place attachment as a driver of adaptation in coastal communities in Northern Norway. *Local Environment*, 20(3), 257-276.
- Adger, W. N., Quinn, T., Lorenzoni, I., Murphy, C., & Sweeney, J. (2013). Changing social contracts in climate change adaptation. *Nature Climate Change* 3.
- Barr, S., & Devine-Wright, P. (2012). Resilient communities: Sustainabilities in transition. *Local Environment: The International Journal of Justice and Sustainability*, 17(5), 525-532.
- Berkes, F., & Folke, C. (Eds.) (1998). *Linking social and ecological systems: Management practices and social mechanisms for building resilience*. Cambridge, UK: Cambridge University Press.
- Berkes, F., & Ross, H. (2012). Community resilience: Toward an integrated approach. *Society & Natural Resources*, 26(1), 5-20.
- Buikstra, E., Ross, H., King, C. A., Baker, P. G., Hegney, D., McLachlan, K., & Rogers-Clark, C. (2010). The components of resilience — Perceptions of an Australian rural community. *Journal of Community Psychology*, 38(8), 975-991.
- Bristow, G. (2010). Resilient regions: Re-'place'ing regional competitiveness. *Cambridge Journal of Regions, Economy and Society*, 3, 153-167.
- Carpenter, S., Walker, B., Anderies, M., & Abel, N. (2001). From metaphor to measure: Resilience of what to what? *Ecosystems*, 4, 765-781.
- Cuthill, M., Ross, K., Maclean, K., Owens, K., & Witt, B. (2008). Reporting social outcomes of development: An analysis of diverse approaches. *The International Journal of Interdisciplinary Social Science*, 3, 145-158.
- Cutter, S. L., Barnes, L., Berry, M., Burton, C., Evans, E., Tate, E., & Webb, J. (2008a). *Community and regional resilience: Perspectives from hazards, disasters, and emergency management*. CARRI Research Report. Columbia, SC: Hazards and Vulnerability Research Institute, Department of Geography, University of South Carolina.

- Cutter, S. L., Barnes, L., Berry, M., Burton, C., Evans, E., Tate, E., & Webb, J. (2008b). A place-based model for understanding community resilience to natural disasters. *Global Environmental Change*, 18(4), 598-606.
- Darnhofer, I. (2014). Resilience and why it matters for farm management. *European Review of Agricultural Economics*, 41(3), 461–484.
- Darnhofer, I., Fairweather, J., & Moller, H. (2010). Assessing a farm's sustainability: Insights from resilience thinking. *International Journal of Agricultural Sustainability*, 8, 186-198.
- Davidson, D. (2010). The applicability of the concept of resilience to social systems: Some sources of optimism and nagging doubts. *Society and Natural Resources*, 23(12), 1135-1149.
- Davoudi, S. (2012). Resilience: A bridging concept or dead end? *Planning Theory & Practice*, 13, 329-333.
- Donoghue, E., & Sturtevant, V. (2007). Social science constructs in ecosystem assessments: Revisiting community capacity and community resiliency. *Society and Natural Resources*, 20(10), 899-912.
- Espiner, S., & Becken, S. (2014). Tourist towns on the edge: Conceptualising vulnerability and resilience in a protected area tourism system. *Journal of Sustainable Tourism*, 22(4), 646-665.
- Fletcher, D., & Sarkar, M. (2013). Psychological resilience. A review and critique of definitions, concepts and theory. *European Psychologist* 18, 12–23.
- Flora, C. B., Flora, J. L., & Fey, S. (2004). *Rural communities: Legacy and change* (2nd Ed.). Colorado: Westview Press.
- Forney, J., & Stock, P. V. (c2013). Conversion of family farms and resilience in Southland, New Zealand. *International Journal of Sociology of Agriculture and Food*, 21(1), 7-29.
- Franklin, A., Newton, J., & McEntee, J. C. (2011). Moving beyond the alternative: Sustainable communities, rural resilience and the mainstreaming of local food. *Local Environment: The International Journal of Justice and Sustainability*, 16(8), 771-788.
- Găucă, O., & Hadad, S. (2013). Does civil society create social entrepreneurs? *Annals of the University of Oradea, Economic Sciences*, 22(1), 650-658.
- Glover, J. (2012). Rural resilience through continued learning and innovation. *Local Economy*, 27(4), 355-372.

- Graugaard, J. D. (2012). A tool for building community resilience? A case study of the Lewes Pound. *Local Environment: The International Journal of Justice and Sustainability*, 17(2), 243-260.
- Hassink, R. (2010). Regional resilience: A promising concept to explain differences in regional economic adaptability? *Cambridge Journal of Regions, Economy and Society*, 3, 45-58.
- Hegney, D. G., Buikstra, E., Baker, P., Rogers-Clark, C., Pearce, S., Ross, H., King, C., & Watson-Luke, A. (2007). Individual resilience in rural people: A Queensland study, Australia. *The International Electronic Journal of Rural and Remote Health Research, Education, Practice and Policy*, 7, 620-634.
- Holling, C. S. (1973). Resilience and stability of ecological systems. *Annual Review of Ecology and Systematics*, 4, 1-23.
- Holling, C. S. (2001). Understanding the complexity of economic, ecological and social systems. *Ecosystems* 4, 390-405.
- Hudson, R. (2010). Resilient regions in an uncertain world: Wishful thinking or a practical reality. *Cambridge Journal of Regions, Economy and Society*, 3, 11-25.
- Hunt, W., Vanclay, F., Birch, C., Coutts, J., Flittner, N., & Williams, B. (2011). Agricultural extension: Building capacity and resilience in rural industries and communities. *Rural Society*, 20(2), 112-127.
- Kulig, J. C., Edge, D. S., & Joyce, B. (2008). Understanding community resilience in rural communities through multimethod research. *Journal of Rural and Community Development*, 3(3), 76-94.
- Kulig, J. C., Edge, D. S., Townshend, I., Lightfoot, N., & Reimer, W. (2013). Community resiliency: Emerging theoretical insights. *Journal of Community Psychology*, 41(6), 758-775.
- Magis, K. (2010). Community resilience: An indicator of social sustainability. *Society and Natural Resources*, 23(5), 401-416.
- Manyena, S. B., O'Brien, G., O'Keefe, P., & Rose, J. (2011). Disaster resilience: A bounce back or bounce forward ability? *Local Environment: The International Journal of Justice and Sustainability*, 16(5), 417-424.
- Martin, R., & Sunley, P. (2015). On the notion of regional economic resilience: Conceptualization and explanation. *Journal of Economic Geography*, 15(1), 1-42.
- Matarrita-Cascante, D., & Trejos, B. (2013). Community resilience in resource-dependent communities: A comparative case study. *Environment and Planning A*, 45, 1387-1402.

- McCrea, R., Walton, A., & Leonard, R. (2014). A conceptual framework for investigating community wellbeing and resilience. *Rural Society*, 23(3), 270-282.
- McManus, P., Walmsley, J., Argent, N., Baum, S., Bourke, L., Martin, J., Pritchard, B., & Sorenson, T. (2012). Rural community and rural resilience: What is important to farmers in keeping their country towns alive? *Journal of Rural Studies*, 28, 20-29.
- Moberg, F., & Hauge Simonsen, S. (2011). *What is resilience? An introduction to social-ecological research*. Stockholm Resilience Centre, Stockholm
- Mowbray, C. T., Woolley, M. E., Grogan-Kaylor, A., Gant, L. M., Gilster, M. E., & Shanks, T. R. W. (2007). Neighbourhood research from a spatially oriented strengths perspective. *Journal of Community Psychology*, 35(5), 667-680.
- Norris, F. H., Stevens, S. P., Pfefferbaum, B., Wyche, K. F., & Pfefferbaum, R. L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, 41(1-2), 127-150.
- Oncescu, J. (2014). The impact of a rural school's closure on community resiliency. *Leisure/Loisir*, 38(1), 35-52.
- Paniagua, A. (2013). Farmers in remote rural areas: The worth of permanence in the place. *Land Use Policy*, 35, 1-7.
- Pike, A., Dawley, S., & Tomaney, J. (2010). Resilience, adaptation and adaptability. *Cambridge Journal of Regions, Economy and Society*, 3, 59-70.
- Poortinga, W. (2012). Community resilience and health: The role of bonding, bridging, and linking aspects of social capital. *Health and Place*, 18, 286-295.
- Roberts, E., & Townsend, L. (2015). The contribution of the creative economy to the resilience of rural communities: Exploring cultural and digital capital. *Sociologia Ruralis*, Online advance publication, doi: 10.1111/soru.12075
- Ross, H., & Carter, R. W. (2011). Natural disasters and community resilience. *Australasian Journal of Environmental Management*, 18(1), 1-5.
- Schouten, M. A. H., van der Heide, C. M., Heijman, W. J. M., & Opdam, P. F. M. (2012). A resilience-based policy evaluation framework: Application to European rural development policies. *Ecological Economics*, 81, 165-175.
- Scott, M. (2013). Resilience: A conceptual lens for rural studies? *Geography Compass*, 7(9), 597-610.

- Sherrieb, K., Norris, F. H., & Galea, S. (2010). Measuring capacities for community resilience. *Social Indicator Research*, 99, 227-247.
- Skerratt, S. (2013). Enhancing the analysis of rural community resilience: Evidence from community land ownership. *Journal of Rural Studies*, 31, 36-46.
- Smit, B., & Wandel, J. (2006). Adaptation, adaptive capacity and vulnerability. *Global Environmental Change*, 16(3), 282-292.
- Smith, J. W., Moore, R. L., Anderson, D. H., & Siderelis, C. (2012). Community resilience in Southern Appalachia: A theoretical framework and three case studies. *Human Ecology*, 40, 341-353.
- Smith, W., Davis-Colley, C., Mackay, A., & Bankoff, G. (2011). Social impact of the 2004 Manawatu floods and the “hollowing out” of rural New Zealand, *Disasters* 35(3), 540-553.
- Steiner, A., & Atterton, J. (2014). The contribution of rural business to community resilience. *Local Economy*, 29(3), 228-244.
- Stockholm Resilience Centre. (2007). Resilience dictionary. From <http://www.stockholmresilience.org/21/research/what-is-resilience/resilience-dictionary.html>
- Walker, B., Holling, C. S., Carpenter, S. R., & Kinzig, A. (2004). Resilience, adaptability and transformability in social–ecological systems. *Ecology and Society*, 9(2), 5.
- Whitman, Z. R., Wilson, T. M., Seville, E., Vargo, J., Stevenson, J. R., Kachali, H., & Cole J. (2013). Rural organizational impacts, mitigation strategies, and resilience to the 2010 Darfield earthquake, New Zealand. *Natural Hazards*, 69, 1849-1875.
- Wilding, N. (2011). *Exploring community resilience in times of rapid change*. Carnegie UK Trust, Dunfermline.
- Wilson, G. (2010). Multifunctional ‘quality’ and rural community resilience. *Transactions of the Institute of British Geographers*, 35(3), 364-381.
- Wilson, G. (2012a). *Community resilience and environmental transitions*. London: Earthscan.
- Wilson, G. (2012b). Community resilience, globalisation, and transitional pathways of decision-making. *Geoforum* <http://dx.doi.org/10.1016/j.geoforum.2012.03.008>.
- Woods, M. (2014). Family farming in the global countryside. *Anthropological notebooks*, 20(3), 31-48.
- Yamamoto, D. (2011). Regional resilience: Prospects for regional development research. *Geography Compass*, 5(1), 723-736.