

Session 5 – Conservation issues and biological invasions

SOCIAL-ECOLOGICAL NETWORKS AND BIOLOGICAL INVASIONS: APPLICATIONS, CONSTRUCTION, AND ANALYSIS

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Social-ecological networks (SENs) consist of social and ecological actors/entities as well as their interactions. They have been applied to study a range of complex issues such as sustainable resource use, management of ecosystem services and disservices, and collective action. The application of SENs to the field of invasion science has remained limited so far, despite their potential for mapping invasion pathways, understanding invasion success, investigating direct and indirect impacts, and improving the management of biological invasions. Here, we present an overview of how SENs can contribute to studying biological invasions and the different aspects to consider when constructing and analysing such networks. We suggest using multilayer networks consisting of ecological, geographic, technical, social, and governance layers for a more holistic understanding of biological invasions. Modelling system fluxes, such as matter, money, emotion, and information, which interconnect numerous system components, can provide insights into the larger functioning of social-ecological systems, thereby offering avenues to design management and policy solutions to complex problems. Although SENs characteristics will depend on specific research goals, we provide guidance on their construction and analysis in the context of biological invasions, encouraging a more widespread use of this powerful approach within our field.