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### Table 1

Multilayer networks are composed of layers, nodes and edges. Layers represent different types of relationships (e.g.: grooming or association), types of entities (e.g.: male and female, or different species), and spatial locations (e.g.: landcover type, patch) [1]. Nodes represent individual entities in the network, connected by some association or relationship with edges. Interlayer edges connect layers to other layers or individuals across layers. Intralayer edges connect individuals to other individuals within a layer. In Table 1, we describe three types of multilayer networks that incorporate spatial variables: spatially explicit networks, networks of networks and interspecific networks. Other types of networks, such as intercontexual networks or temporal networks, are likely only to incorporate spatial variables in a hybrid multilayer network and relevant considerations will be detailed here.

|  |  |  |  |
| --- | --- | --- | --- |
| Type of network | Spatial network | Network of networks | Interspecific network |
| Layer | Defined by spatially explicit areas (e.g. discrete patches, landcover classes) | Defined by sub-networks (e.g.: subpopulations, communities, fuzzy patches) | Defined by different species |
| Nodes | • Individuals • Spatially explicit layers | • Individuals • Sub-network layers | • Individuals • Species-specific layers |
| Interlayer edges | • Connect individuals to themselves across layers • Connect spatially explicit layers to each other (e.g.: defined by euclidean distance) | • Connect different individuals across sub-networks • Connect sub-networks to each other | • Connect individuals across species layers • Connect species layers to each other |
| Intralayer edges | • Connect individuals within spatially explicit layer | • Connect individuals within sub-network | • Connect individuals within species layers |
| Social grain | • Type of interaction between individuals [2,3] • Chain rule [4] • Definition of social association [5] • Temporal window of social interactions [6] | • Type of interaction between individuals [2,3] • Chain rule [4] • Definition of social association [5] • Temporal window of social interactions [6] | • Type of interaction between individuals [2,3] • Chain rule [4] • Definition of social association [5] • Temporal window of social interactions [6] |
| Spatial grain | • Spatial resolution of landcover • Spatiotemporal grouping threshold [7] | • Number of fuzzy patches • Spatial definition of subpopulations and communities | • Spatial connectivity |
| Examples | todo | todo | [8–10] |
| Image |  |  |  |

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