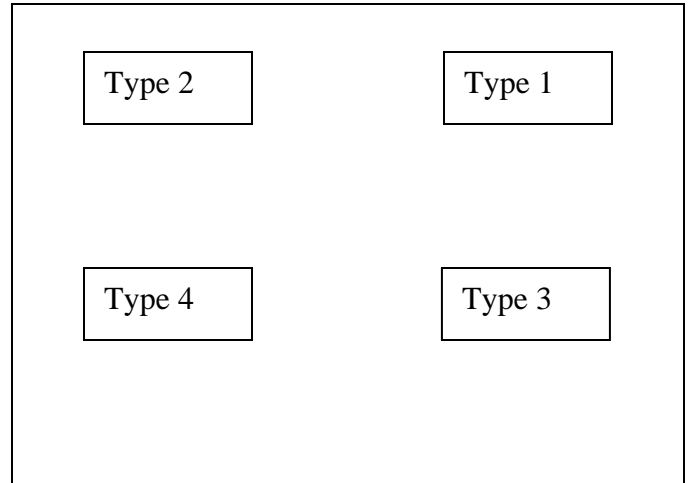


Landscape Ecology - Disturbances and Habitat fragmentation

- Types of disturbance
 - Scale, frequency
 - Classification

- Types of fragmentation
 - Scale, patch, and matrix
 - Degrees of fragmentation
 - Effects of fragmentation

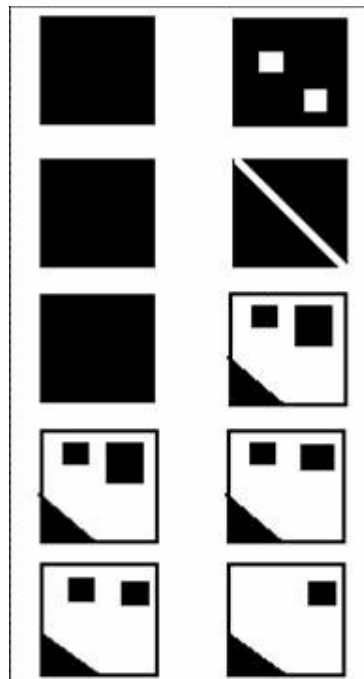
- How to study patches
- Metapopulations



• Types of fragmentation

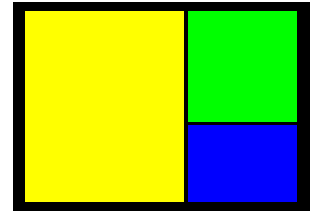
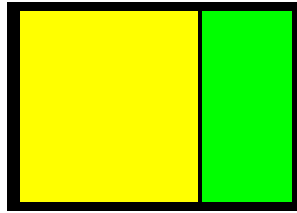
Draw lines to connect the type with the definition

- _____
– Breaking up into smaller parts
- _____
– Decrease of size of patches
- _____
– Loss of existing patches
- _____
– Making holes in a habitat or type
- _____
– sub-dividing with = width lines

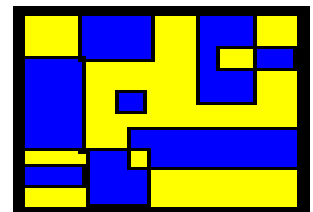
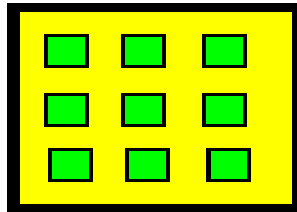


Matrix: how to determine it

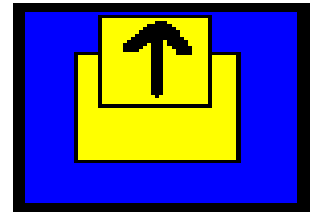
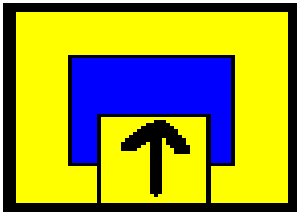
- Area



- Connectivity



- Control of dynamics



Patch-Corridor-Matrix types

- Large patch
- Small patch
- Dendritic
- Rectilinear
- Checkerboard
- Interdigitated

WILDLIFE POPULATION: HABITAT CONNECTIONS

- Main concepts:
 - Habitats and populations are patchy and heterogeneous
 - from population perspective, Not all habitats are equal
 - Paradigms:
 - Island biogeography
 - Metapopulations
 - Landscape ecology
 - Consequences of habitat selection
-
- _____ Focused on communities
 - Extrapolated to mainland situations, habitat patches = islands
 - Used to develop “rules” for refuge design
 - Dominant conservation paradigm through 1980s
 - Fallen out of favor, largely supplanted by the _____ paradigm

Draw the diagram that goes with the definition

Types of Metapopulations

- Classic - a large network of similar small patches, with local dynamics occurring at a much faster time scale than metapopulation dynamics; in a broader sense used for systems in which all local populations, even if they may differ in size, have a significant risk of extinction
- Mainland-island - System of habitat patches (islands) located within dispersal distance from a very large habitat patch (mainland) where the local population never goes extinct
- Nonequilibrium metapopulation - Metapopulation in which (long-term) extinction rate exceeds colonization rate or vice versa; an extreme case is where local populations are located so far from each other that there is no migration between them and hence no possibility for recolonization
- Patchy population - A metapopulation model in which local population size is ignored and the number (or fraction) of occupied habitat patches is modeled

Habitat quality reliably measured only by demographic variables (reproduction, survival, fitness)

- Van Horne (1983)
 - _____ as a misleading indicator of habitat quality

- Ligon and Stacey (1996)
 - Acorn woodpeckers
 - How would you explain population changes based on findings of Ligon and Stacey (1996)?
 - What metapopulation model might this species follow?