- **III.** Community Ecology
- **A. Community Definition**
- **B.** Community properties
  - 1. Species number
  - 2. Relative abundance
  - 3. Species diversity
  - 3. Relationships among species
- **C.** Effects of species interactions on species diversity

1. Paine's intertidal experiment

**D.** Effects of patchiness and disturbance on species diversity

**1.** The intermediate disturbance hypothesis

Fig 53.2



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## Community Ecology









# Species number varies

Alpine tundra

tropical forest

Photos © David Houle

Fig. 53.21 Species Diversity

### Simpson's D = 4



Community 1 A: 25% B: 25% C: 25% D: 25%

#### Simpson's D = 1.53



#### Community 2 A: 80% B: 5% C: 5% D: 10%

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#### Fig. 53.22 A common pattern of species relative abundance



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### Fig. 53.11 A food web



## Rocky intertidal community



### Simplified food web of a rocky intertidal community





#### (b)

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# Disturbance







### Fig. 53.19 Succession on glacial moraines

#### Moss stage of early succession



#### **Retreating glacier with moraine to right**

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## Table 53.2 The Pattern of Succession on Morainesin Glacier Bay

Years after Deglaciation	Dominant Plant	Other Common Species
0-30	Dryas	Fireweed, willows, mosses, cottonwoods
30-80	Alder	Willows
80-200	Sitka spruce	Alder, willows
200-300	Sitka spruce, western hemlock	Mountain hemlock
> 300	Sphagnum moss (in flat areas)	Bog plants



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