

Something about grasslands and fire

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Wikipedia notes

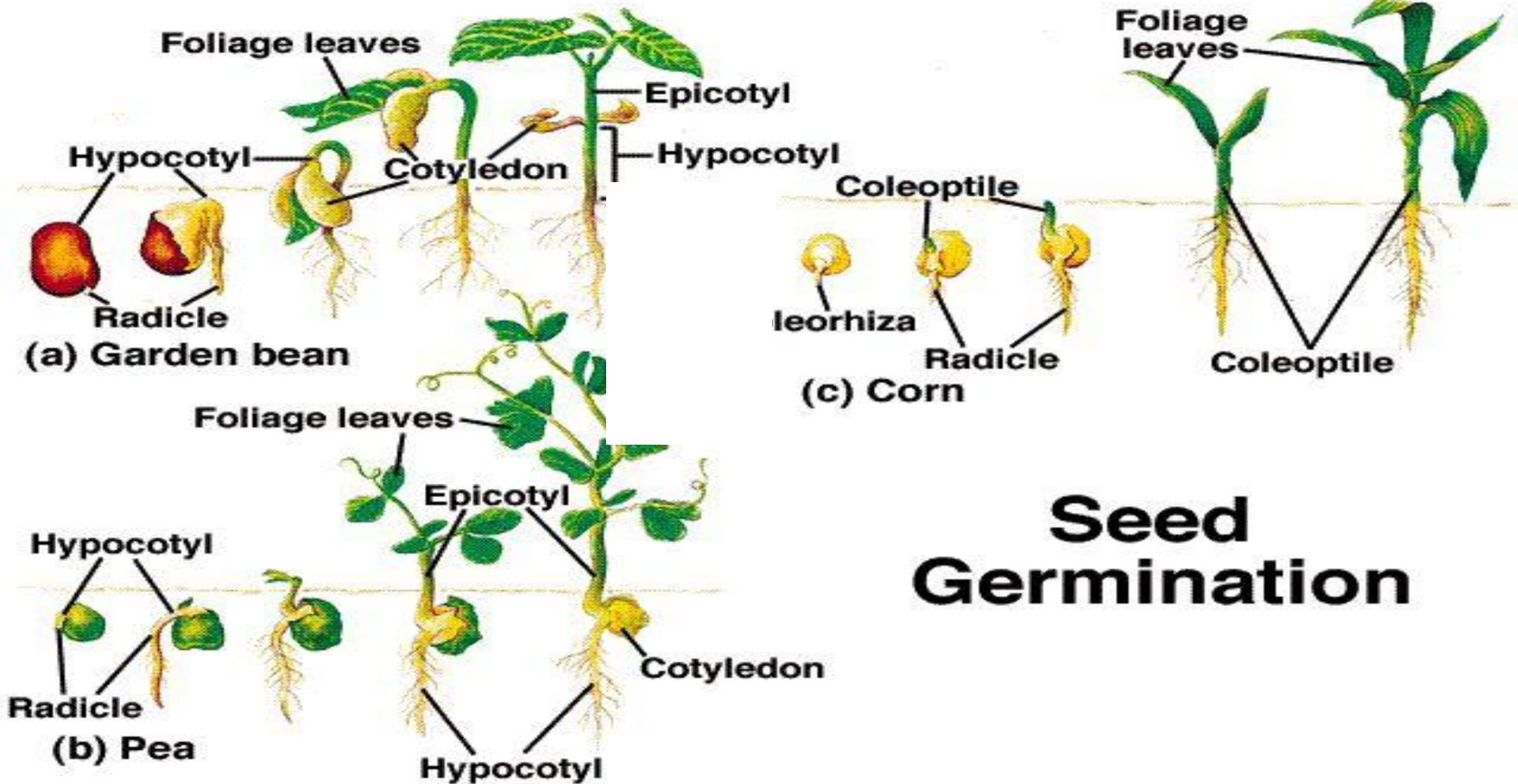
- Most abundant and widely distributed plants on earth – grass covers 20-30% of the land.
- Grasses provide more than 50% of the direct calories consumed by humans and 70% of crops are grasses. Beer.
- Been around since dinosaurs
- Evolved in step with grazers
- Through most of their history, they were tropical understory plants.

Woody plants



Dicot herb

Randy Moore, Dennis Clark, and Darrell Vodopich, Botany Visual Resource Library © 1998 The McGraw-Hill Companies, Inc. All rights reserved.



Seed Germination

msuweeds.com

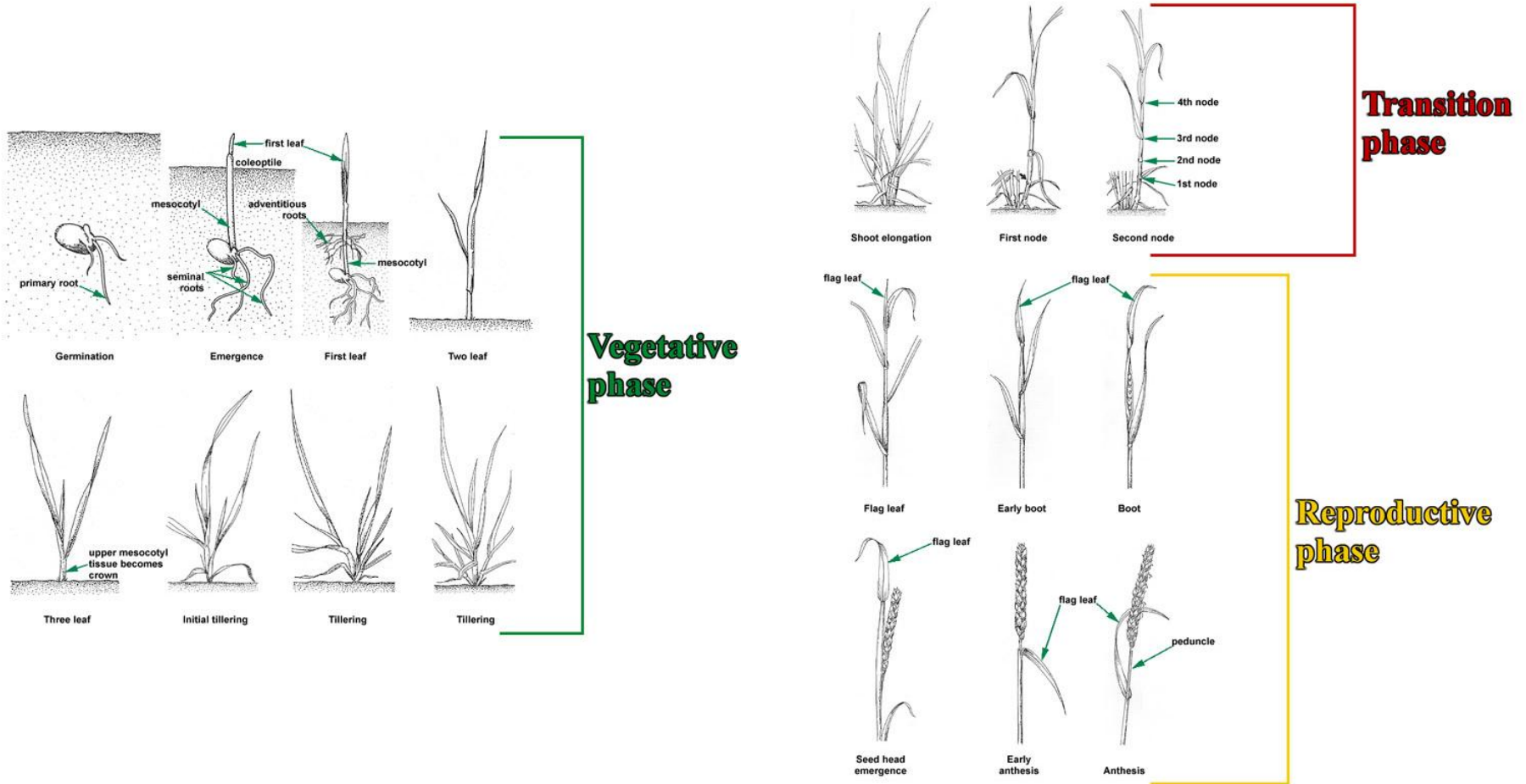


gardeninggarden.com



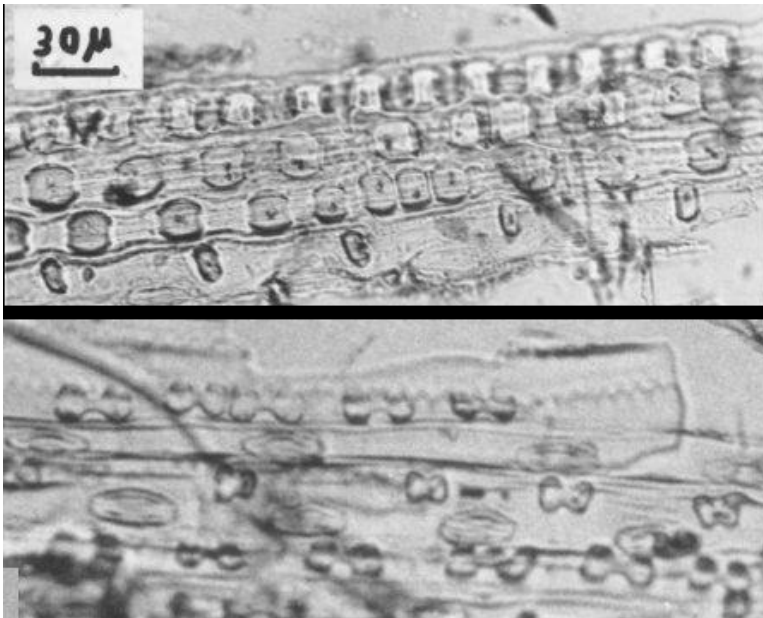
chilli-willy.com

What is the lifecycle of a grass plant?

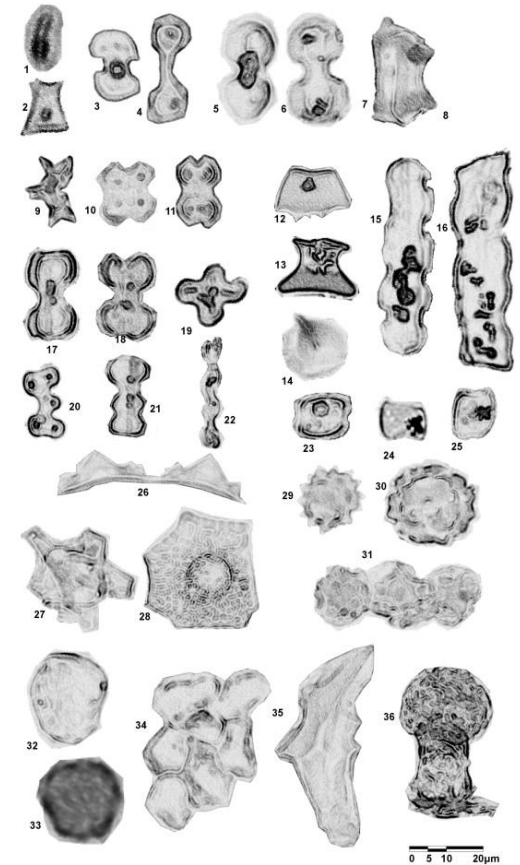


Adaptation to grazing

- Leaves elongate from the base instead of the tip.
- Leaves contain opal phytoliths



http://etc.usf.edu/clipart/41400/41438/teeth_41438.htm



<http://www.sciencedirect.com/science/article/pii/S1040618211006665>



getfreewallpapers.net



ehow.com

reynoldspest.com



fao.org





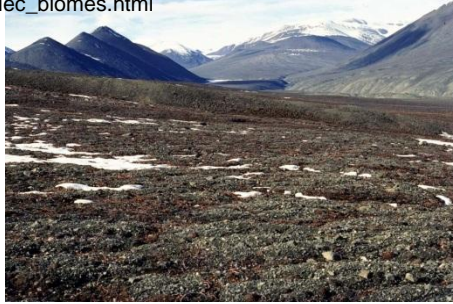
Photos.com

guyanagrenier.wordpress.com



What are grasslands?

http://www.bio.miami.edu/ecosummer/lectures/lec_biomes.html



- Four terrestrial biomes-

I also add

- Tundra
- Desert
- Grassland
- Forest

- Shrublands
- Savannas



http://www.bio.miami.edu/ecosummer/lectures/lec_biomes.html



Where do they occur in the world?

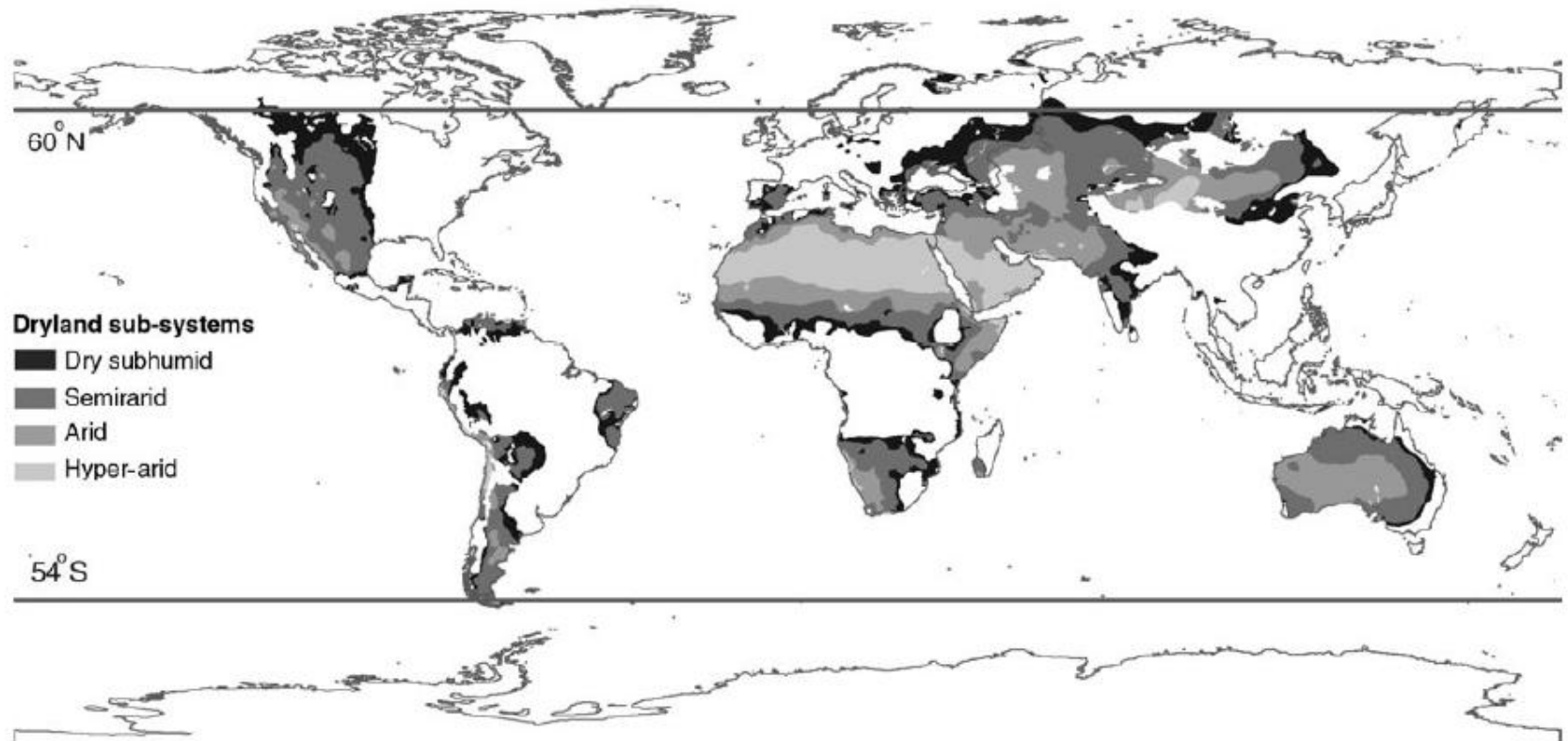
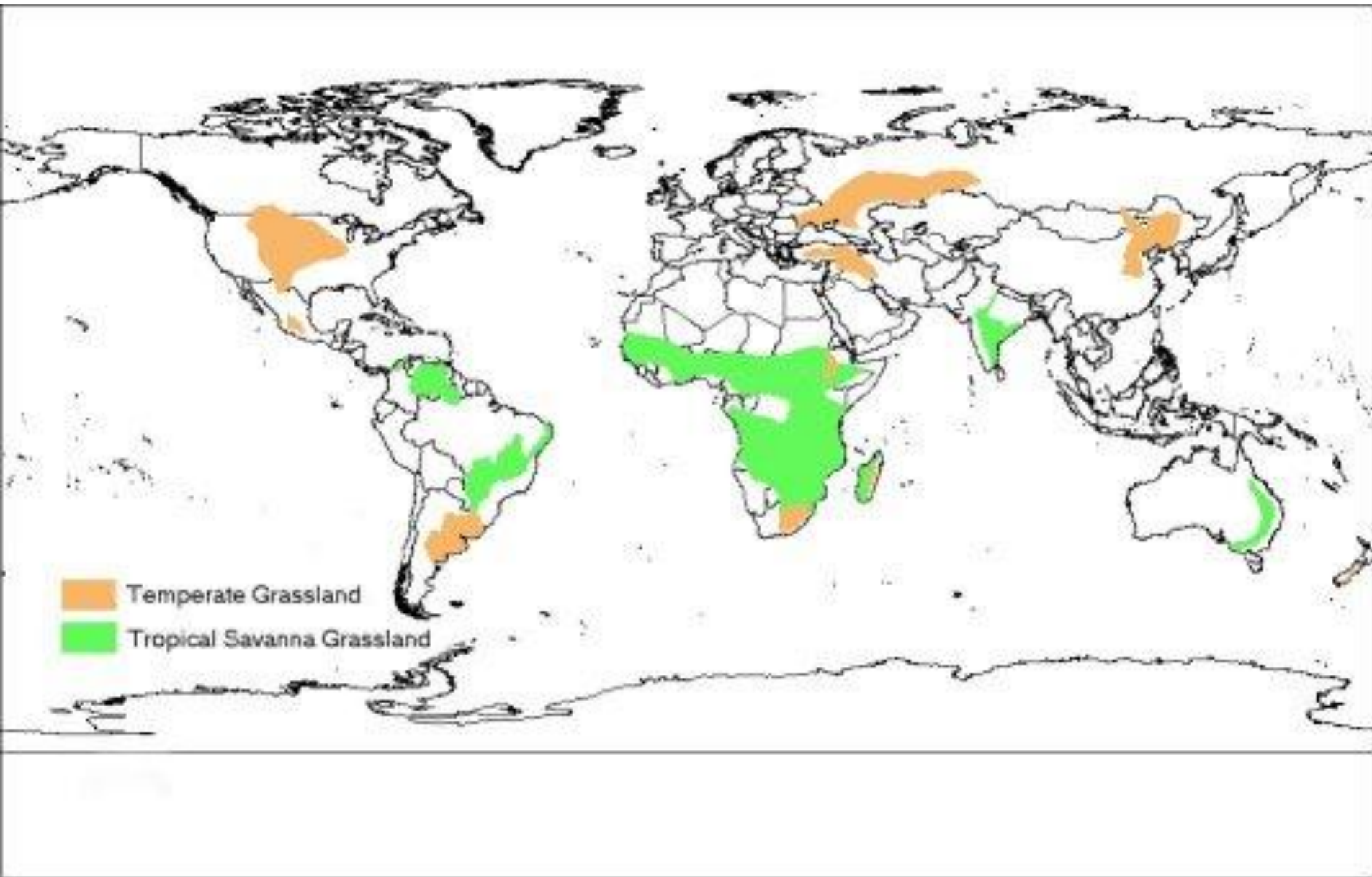


Figure 22.1. Dryland Systems and Subtypes



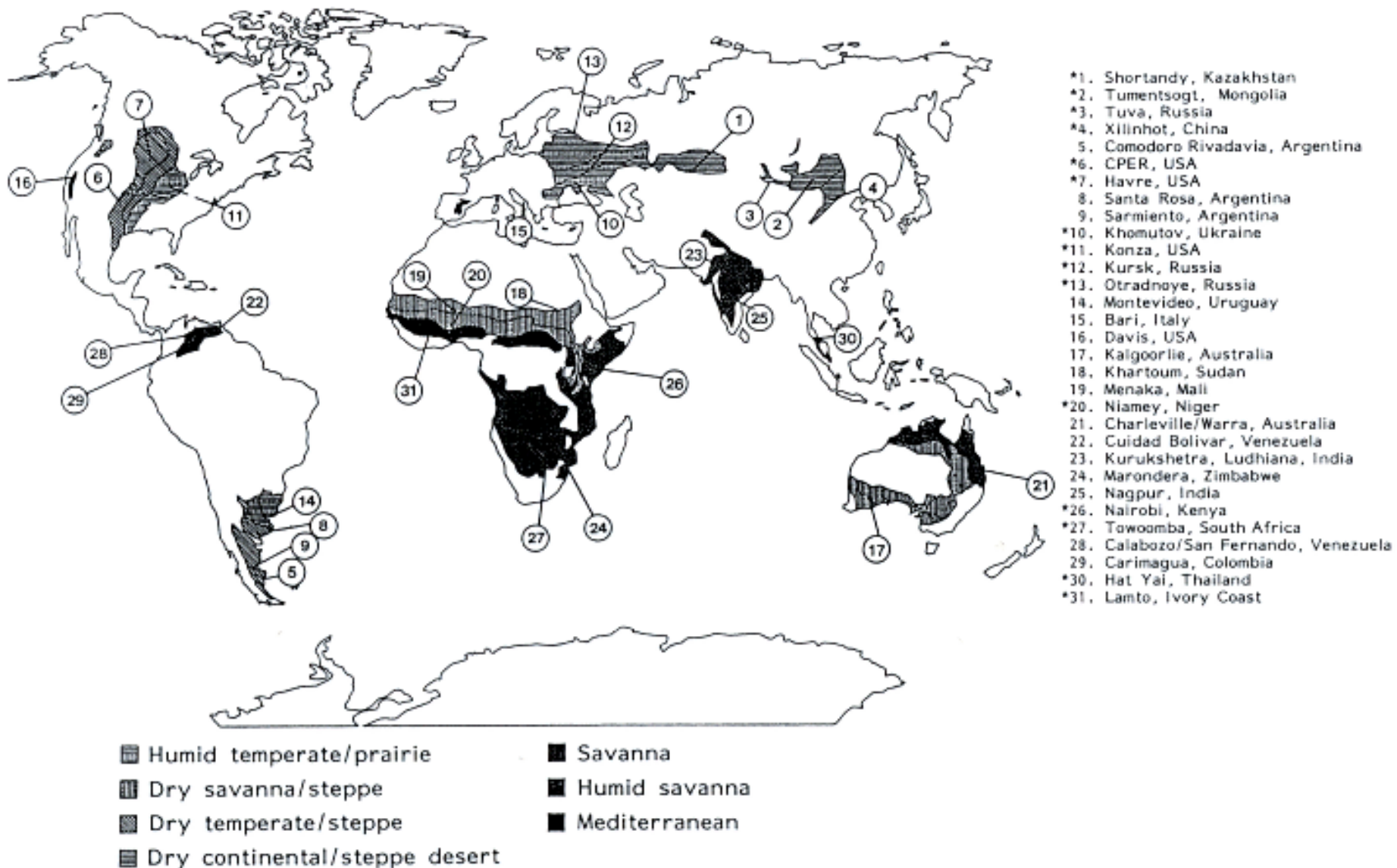
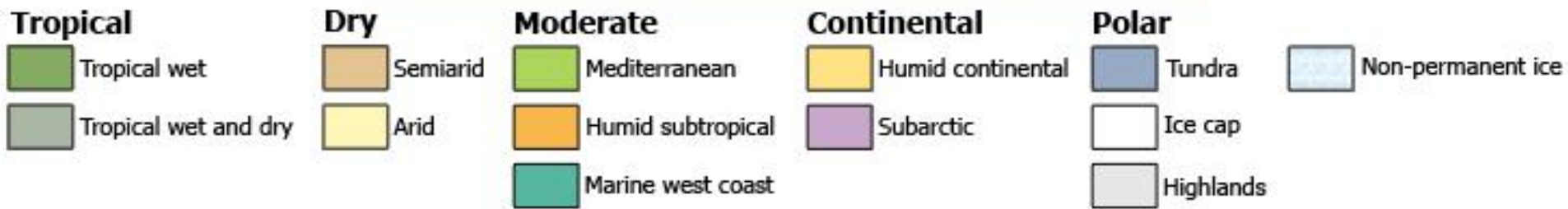
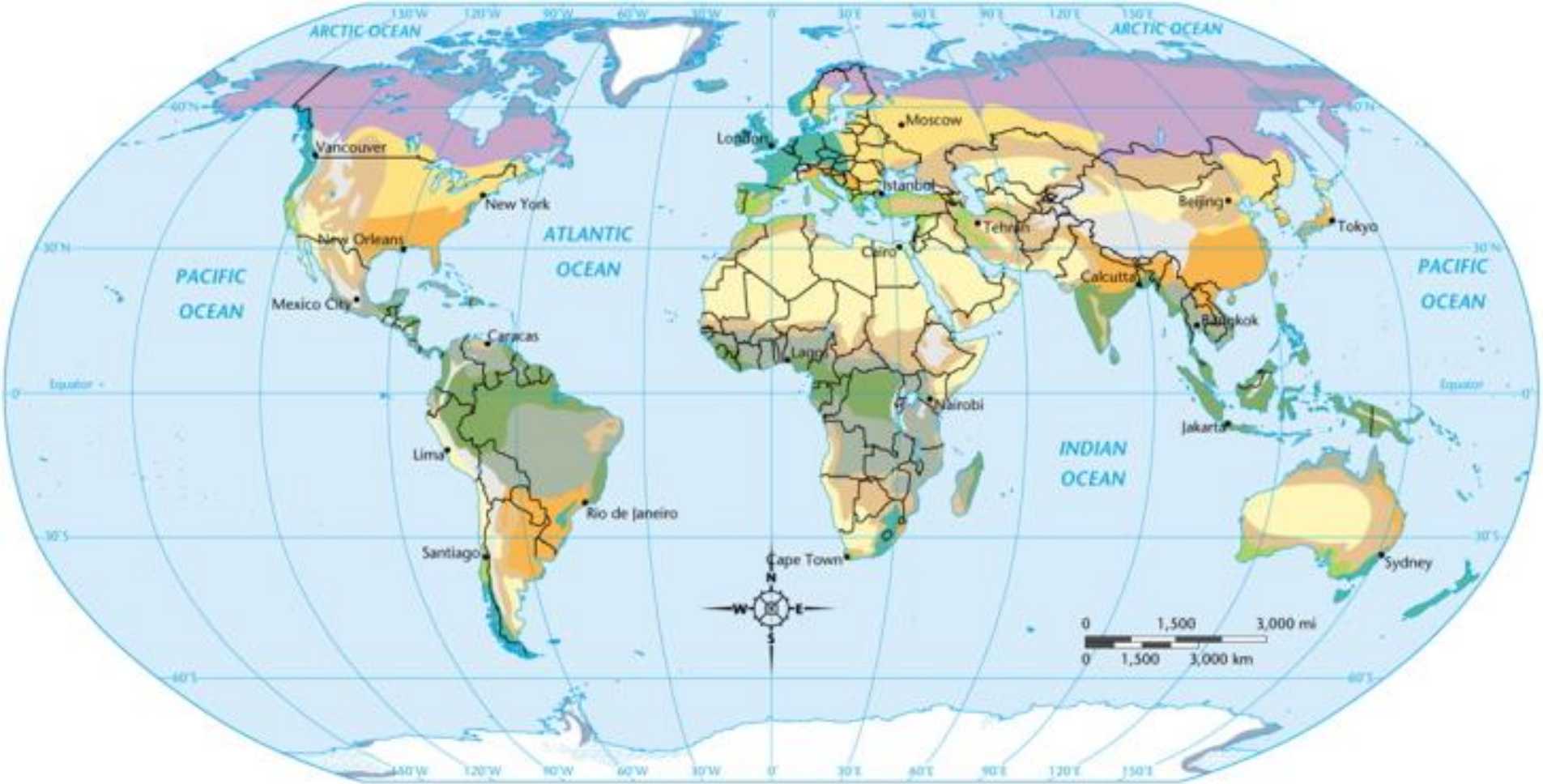


Figure 12.1 Map showing location of grassland sites and boundaries of Bailey ecoregions representing grasslands worldwide. N .indicates sites used in the initial parameterization of different grassland ecosystems in various ecoregions (see Parton *et al.* 1996, Chapter 11 this volume)



<http://img127.imageshack.us/i/climatemapworldrn6.png/>

Why grasslands? Why not forests or shrublands or savannas?

- Could woody plants grow there?



<http://nprnd.org>



<http://coopext.colorado.edu>

- People disagree:
 - Disturbance caused
 - Result from climate and shallow soil

Fire on grasslands

- Fires like grasses
- Grasses like fires
- Fire effects are variable:
 - When it occurs
 - How hot it is
 - How often it occurs
 - What was there before the fire
 - What grew/happened after the fire

They have a long history together.

Grasslands depend on disturbance

– Fire



<http://reveg-catalog.tamu.edu/06-Fire.htm>

– Grazing



<http://www.livestockforlandscapes.com/goats.htm>

– Environmental

– Recreation

– Management (mowing/herbicides)

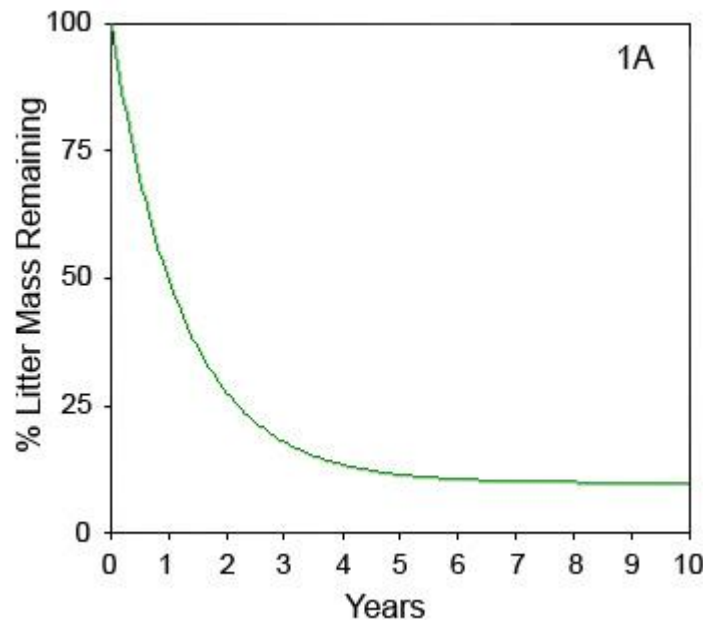


http://en.wikipedia.org/wiki/Tree_line



<http://en.wikipedia.org/wiki/Flood-meadow>

What is the fate of uneaten herbaceous litter?



- **Fig. 1A** Theory predicts that litter decomposition declines exponentially over time and the largest mass loss occurs in the first few years. Data for Nebraska



clbrowningranch.org

<http://www.climatechange.umaine.edu/Research/Contrib/images/13fig1.jpg>



Fire and Grazing

- combine to increase diversity.
- Patchiness is good and fire and grazing together make things patchy which benefits plants, animals, birds, insects, etc.



http://fireecology.okstate.edu/patch_burning_heterogeneity.html



maine.gov