

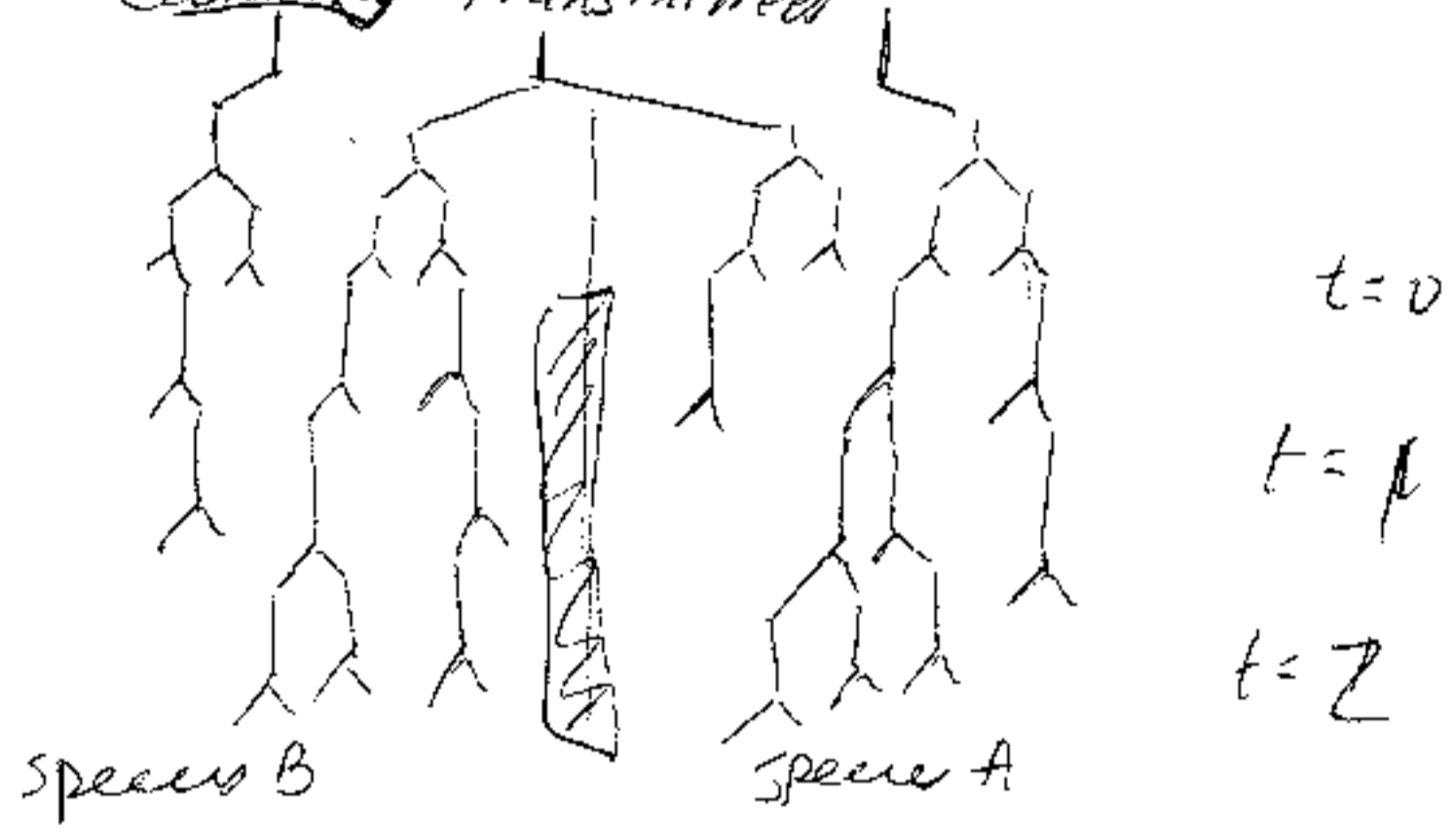
2/9/93

John Avise - Phylogeography &
Conservation Biology w/ mtDNA

Phylogeny w/in species difficult to work out.

mtDNA

- ① One gene
- ② 2 rRNA
- ③ 20 tRNA
- ④ Gene order v. conservative
- No spacers
- No introns
- ⑤ But still has higher rate than mtDNA
- ⑥ Clonally transmitted



At diff. times after species separate the phylogeny of genes varies. At t=0 paraphyletic at t=2 monophyletic.

Case Histories

Fresh H₂O fishes

Boutin - geographic localization of genotypes

Amia calpa - non-random distribution

- deepest branch distinguishes W & E

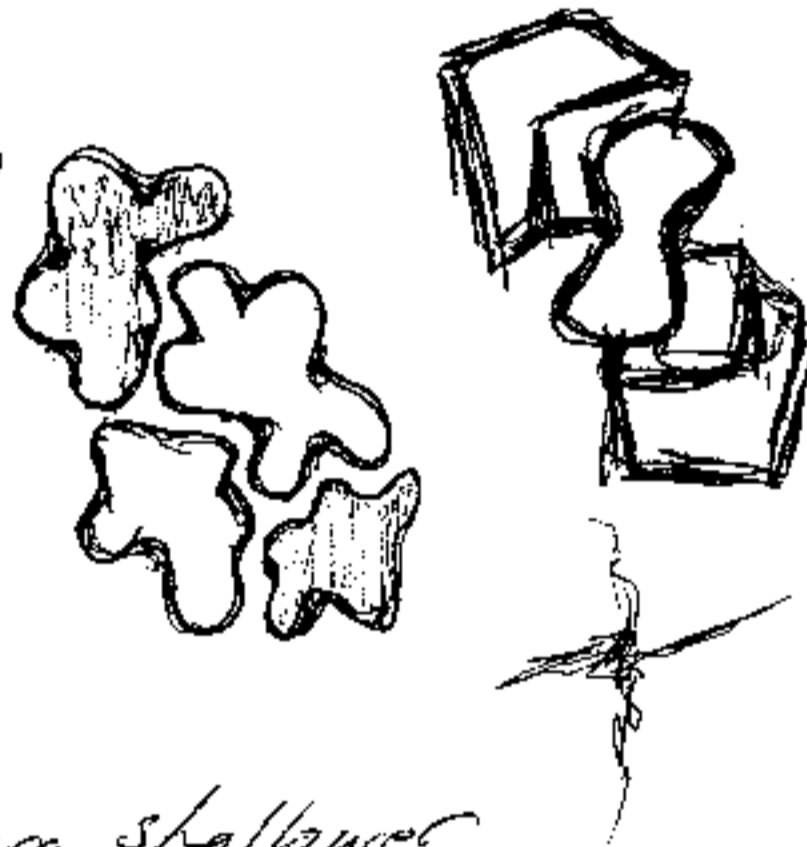
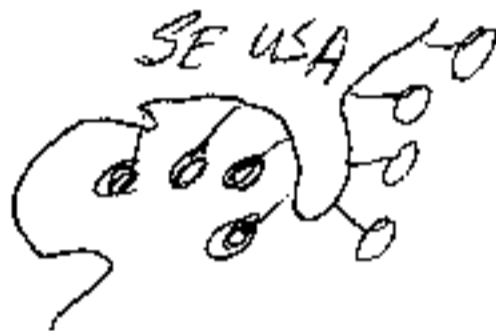
Sunfish

- deep branch also W vs E

Lepomis

punctatus

Flourish crab - some homoplasy

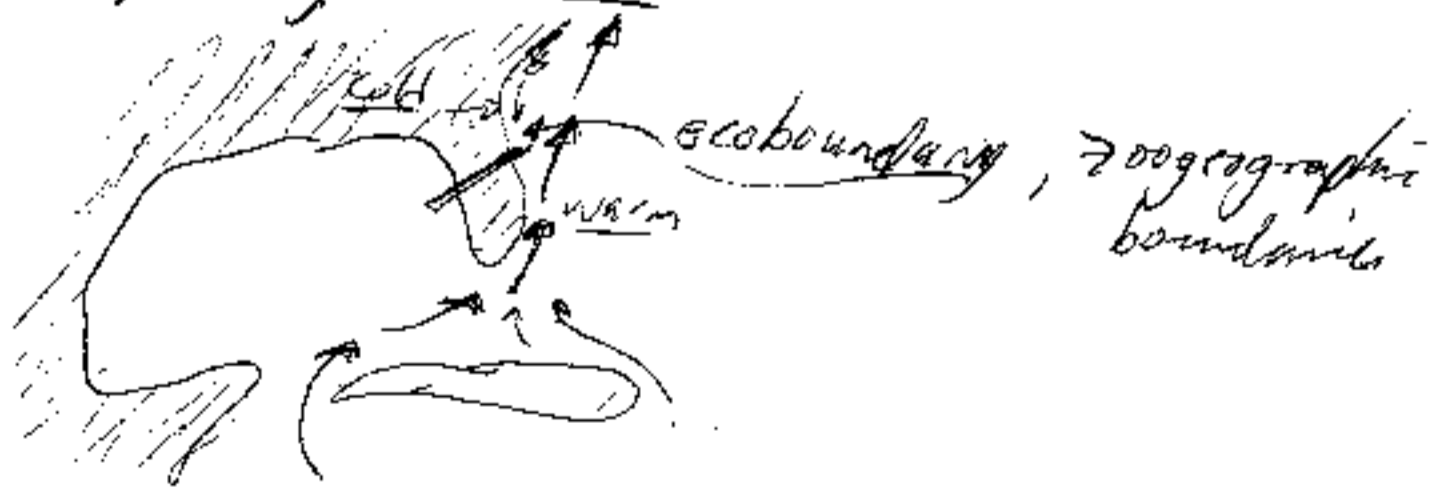


History

① sea level changes -

eg. in Pleistocene ~ 200m shallower

② contemporary currents



③ counterexamples = eels don't have this pattern