

## Natural Selection



---

---

---

---

---

---

---

## Redwing Blackbird

- has red epaulettes in order to mate
- with red epaulettes get to mate



---

---

---

---

---

---

---

## Shovelers

- Teleological
- Anthropomorphic



---

---

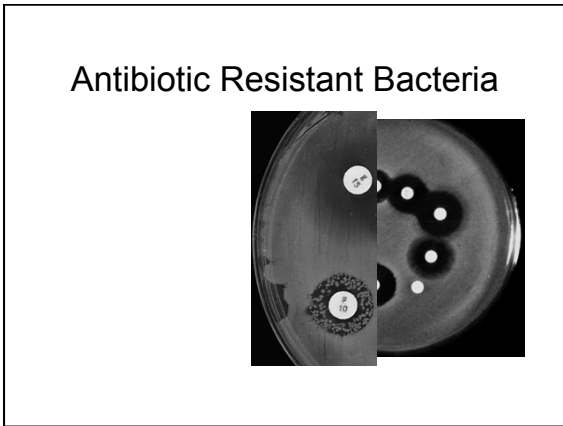
---

---

---

---

---




---

---

---

---

---

---

---

---

### Seasonal Influenza Vaccines

'67-68	A/Ann Arbor/57 A/Japan/62 B/Maryland/59		
'68-69	A/Japan/62 A/Taiwan/64 B/Mass/66		
'76-77	A/Victoria/75 A/New Jersey/76 B/Hong Kong/72	'13-14	A/California/7/2009 (H1N1) A/Victoria/361/2011 (H3N2) B/Massachusetts/2/2012
'99-00	A/Beijing/95 A/Sydney/97 B/Yanmashi/95	'14-15	A/California/7/2009 (H1N1) A/Texas/50/2012 (H3N2) B/Massachusetts/2/2012
AND SO ON...		'15-16	A/California/7/2009 (H1N1) A/Switzerland/9715293/2013 (H3N2) B/Phuket/3073/2013

---

---

---

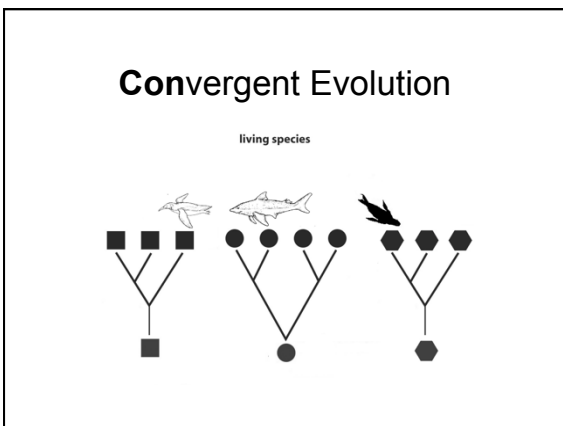
---

---

---

---

---




---

---

---

---


---

---

---

---

Why don't great & snowy egrets mate?  
Or do they?



--

---

---

---

---


---

---

---

---

Species:



Northern flicker

---

---

---

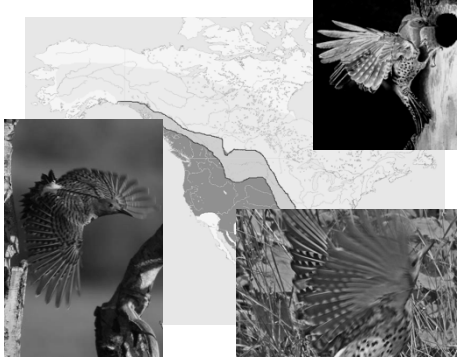
---

---

---

---

---



---

---

---

---

---

---

---

---

## Speciation

- Allopatric
- Sympatric
- Parapatric

---

---

---

---

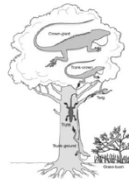
---

---

---

---

Island	Ecomorph					
	Crown-giant	Trunk-crown	Trunk	Twig	Trunk-ground	Grass-bush
Cuba	✓	✓	✓	✓	✓	✓
Hispaniola	✓	✓	✓	✓	✓	✓
Puerto Rico	✓	✓		✓	✓	✓
Jamaica	✓	✓		✓	✓	




---

---

---

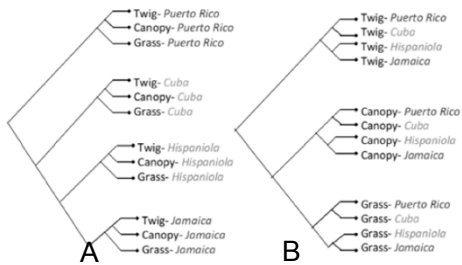
---

---

---

---

---




---

---

---

---

---


---

---

---

**Ecological Equivalents**

Occupy same ecological niche in different biogeographical realms



---

---

---

---


---

---

---

**Convergent Evolution**  
Ant-eating mammal needs:

- Tongue?
- Teeth?
- Leg length?
- Toes?



---

---

---


---

---

---

---

**Divergent Evolution**  
Competition leads to:



---

---

---

---

---

---

---