

# Endangered Amphibian Research within Grazed Grasslands

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# Acknowledgements

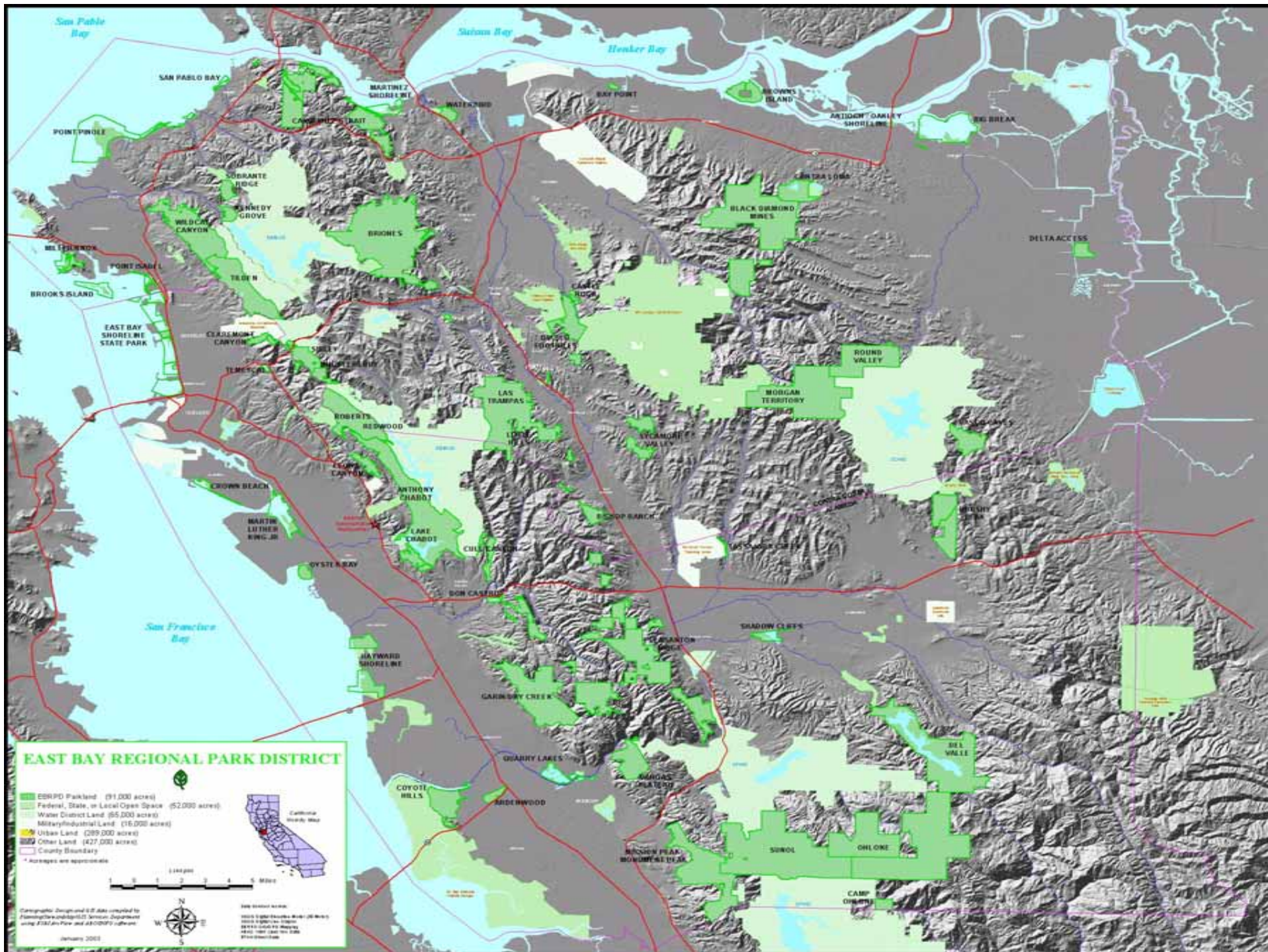
- **Steve Bobzien, Biologist, EBRPD**
- **Dr, Gary Fellars, PRNS**
- **Numerous interns, staff and volunteers**



# Today's Discussion

- Overview of Research since 1996
- Specific results regarding pond habitat for red-legged frogs and tiger salamanders
- Inter-relationship with grazing as a habitat management tool for vegetation in ponds and uplands









CA Red-legged Frog

CA Tiger salamander

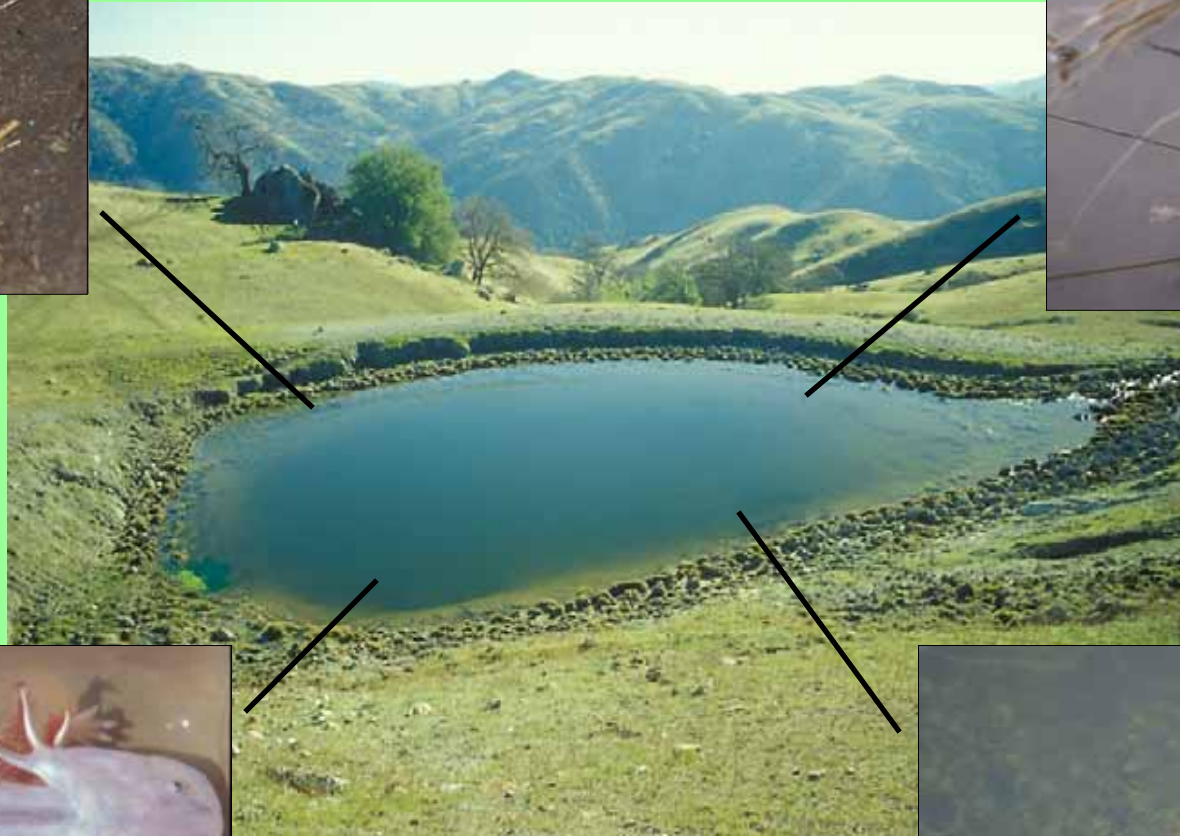








# *CTS Life cycle*





# Pond Data

- **275 Ponds in District**
  - 179 surveyed in 1996
  - 210 surveyed in 2000
  - 186 surveyed in 2004
- **Evaluated pond vegetation**
  - % Submerged
  - % Emerged
  - (0%, <15%, >15%,)

## **Tiger Salamander Breeding**

<b>SURVEY YEAR</b>	<b>NUMBER OF PONDS WITH BREEDING</b>	<b>NUMBER OF PONDS AVAILABLE FOR BREEDING</b>	<b>PERCENT OF AVAILABLE PONDS WITH BREEDING</b>
<b>1996</b>	<b>29</b>	<b>61</b>	<b>47.5 %</b>
<b>2000</b>	<b>35</b>	<b>70</b>	<b>50.0 %</b>
<b>2004</b>	<b>33</b>	<b>75</b>	<b>44.0 %</b>



## **Red-legged Frog Breeding**

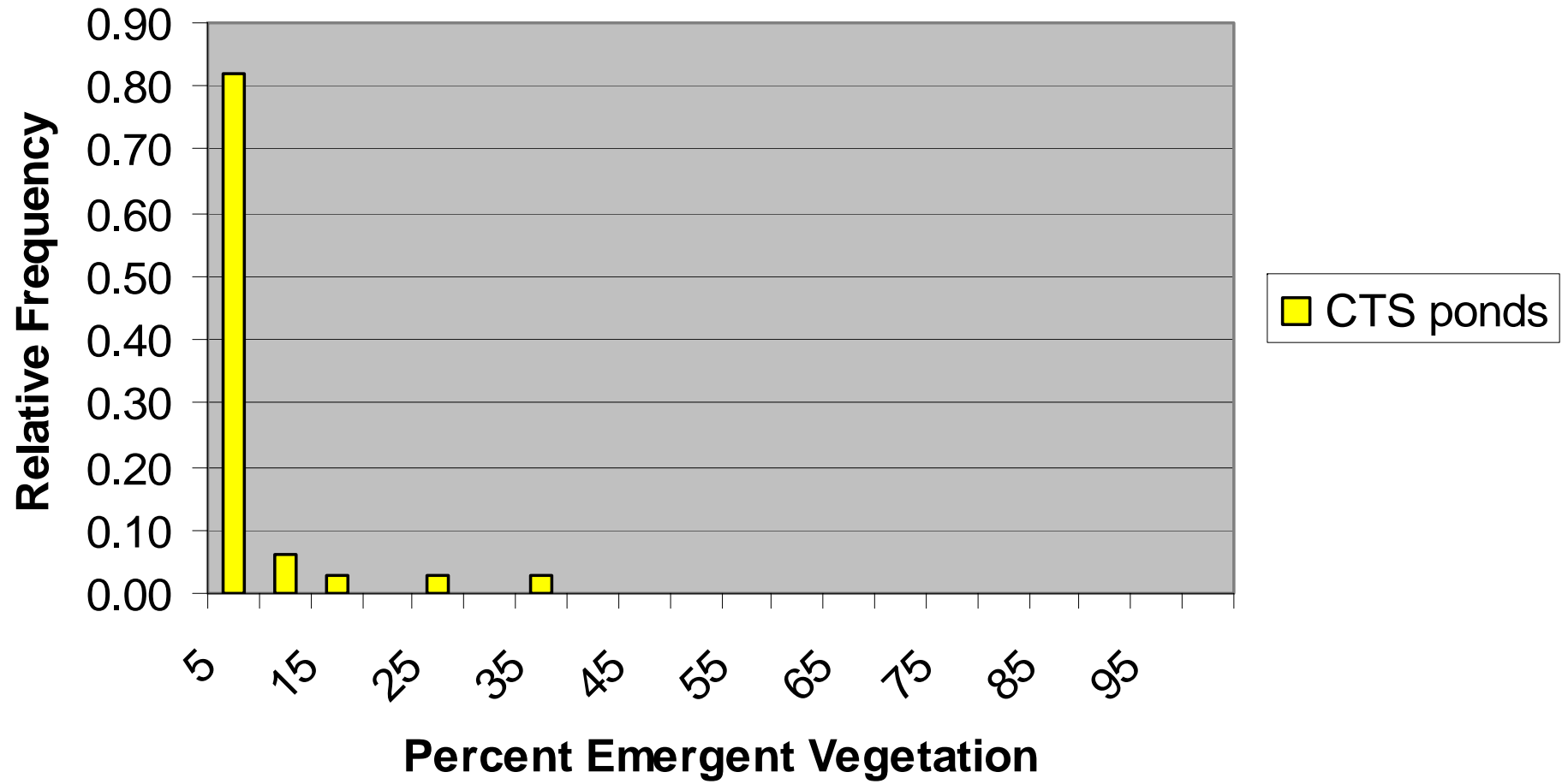
<b>SURVEY YEAR</b>	<b>NUMBER OF PONDS OCCUPIED</b>	<b>NUMBER OF PONDS WITH BREEDING</b>	<b>PERCENT OF PONDS WITH BREEDING</b>
<b>1996</b>	<b>51</b>	<b>38</b>	<b>74.0 %</b>
<b>2000</b>	<b>73</b>	<b>65</b>	<b>89.0 %</b>
<b>2004</b>	<b>64</b>	<b>47</b>	<b>73.0 %</b>

# Vegetation Structure in Ponds as a Result of Livestock Grazing

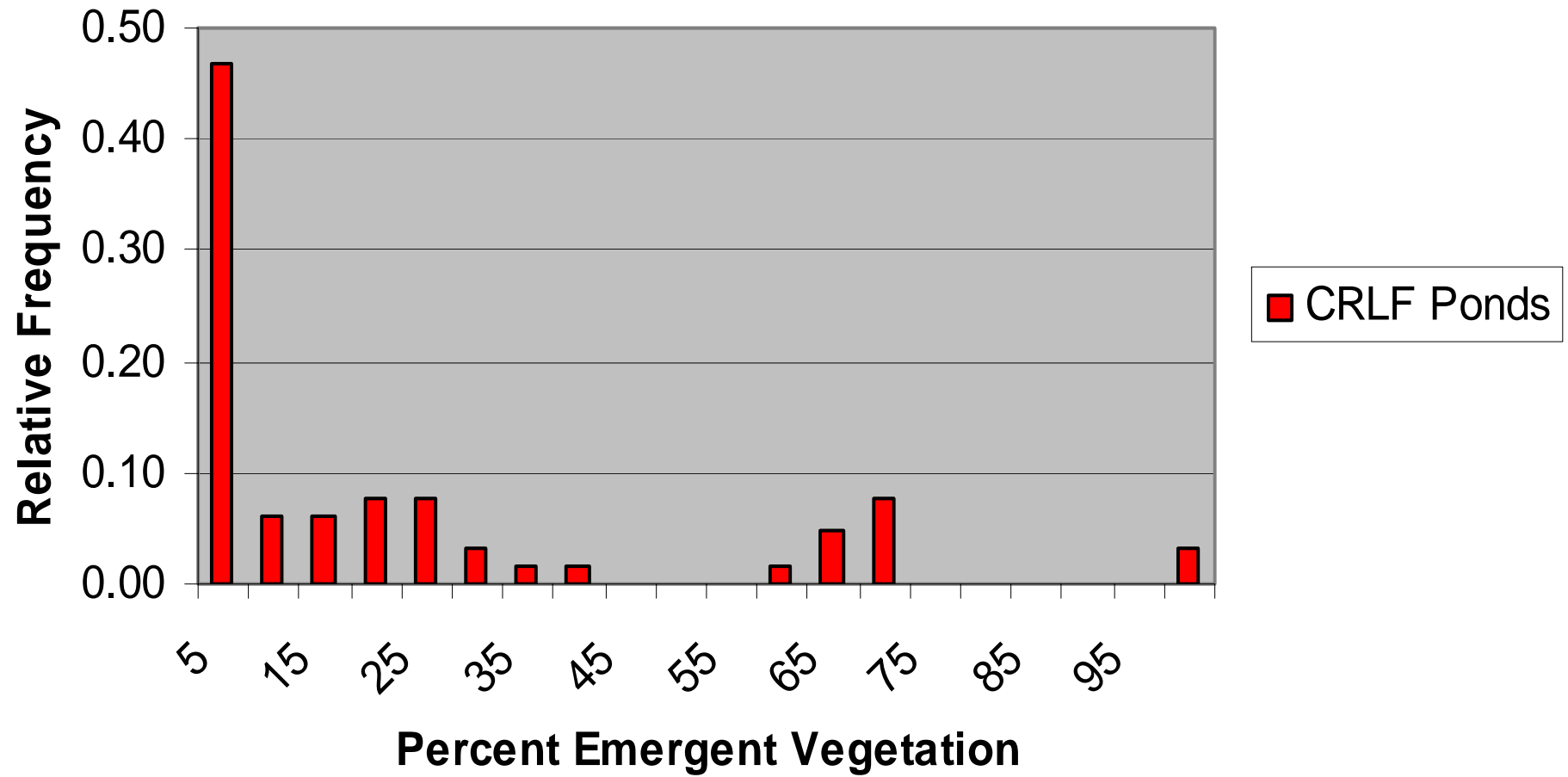




# CTS ponds



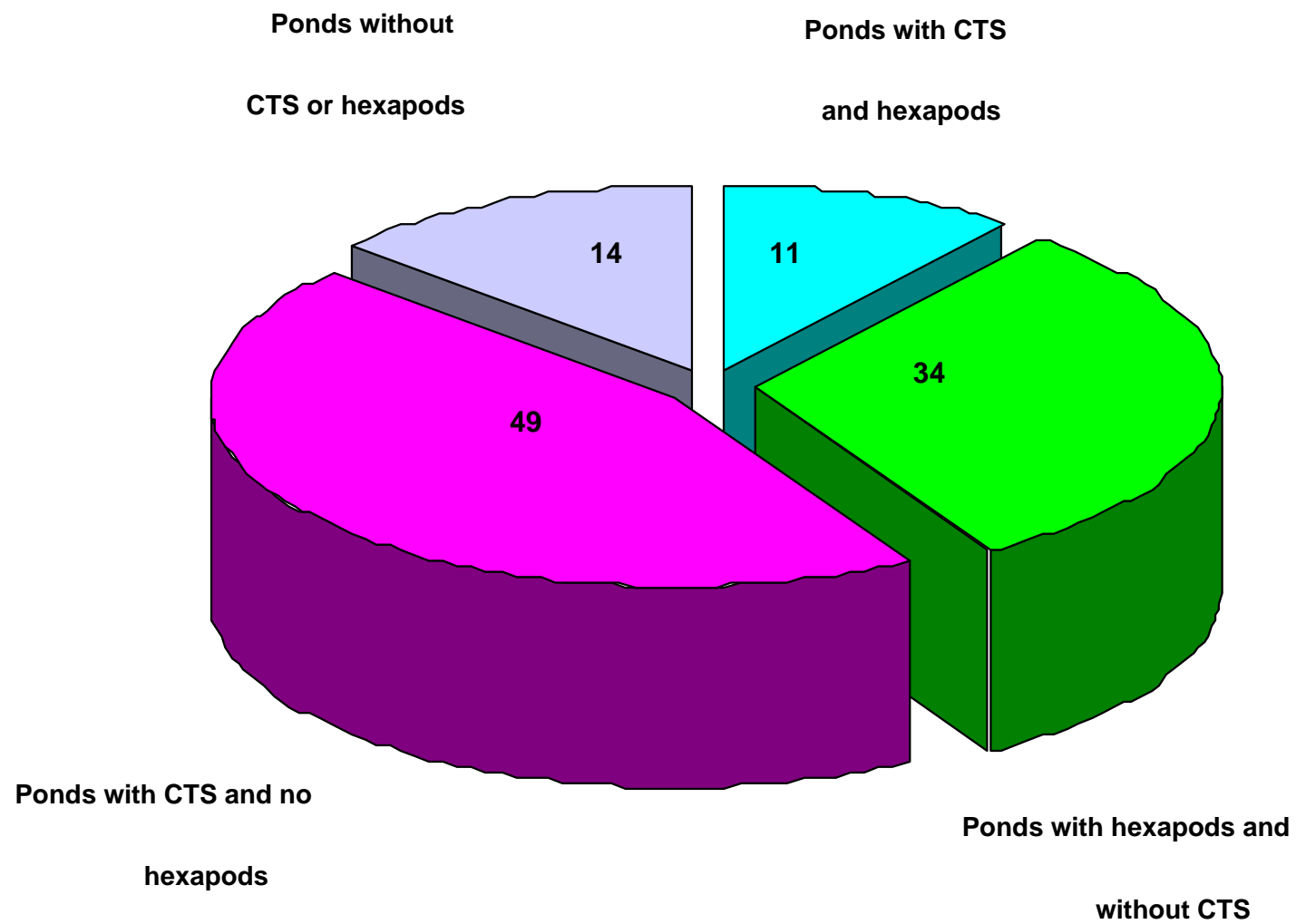
## CRLF Ponds





# Predacious aquatic hexapods





# Beneficial effects of livestock grazing



- Livestock grazing is effective in maintaining open grasslands and oak savannah communities
- There appears to be a strong association between these grazed communities, burrowing rodents, and the presence of *Tiger Salamanders*

# Beneficial effects of livestock grazing



- Compaction by livestock have been documented to increase the ponding duration of vernal pools and seasonal ponds
- The creation of stockponds for livestock has created highly suitable reproductive habitat for *Tiger Salamanders*
- On District lands *Tiger Salamanders* breed exclusively in seasonal and perennial stockponds



# Beneficial effects of livestock grazing



- The District supports over 500 adult *Red Legged Frogs*
- The vast majority of waterbodies that support *Red Legged Frogs* provide water for livestock
- These stockponds provide highly suitable habitat which has augmented the *Red Legged Frogs* population in the East Bay
- *Red Legged Frogs* are compatible with range management utilizing livestock as a tool

# Conclusion

- **Amphibians evolved with disturbances associated with large herbivores**
- **USFWS recent ESA 4d rule exempts grazing practices**
- **Private lands highly complement public lands in long-term management of species**

