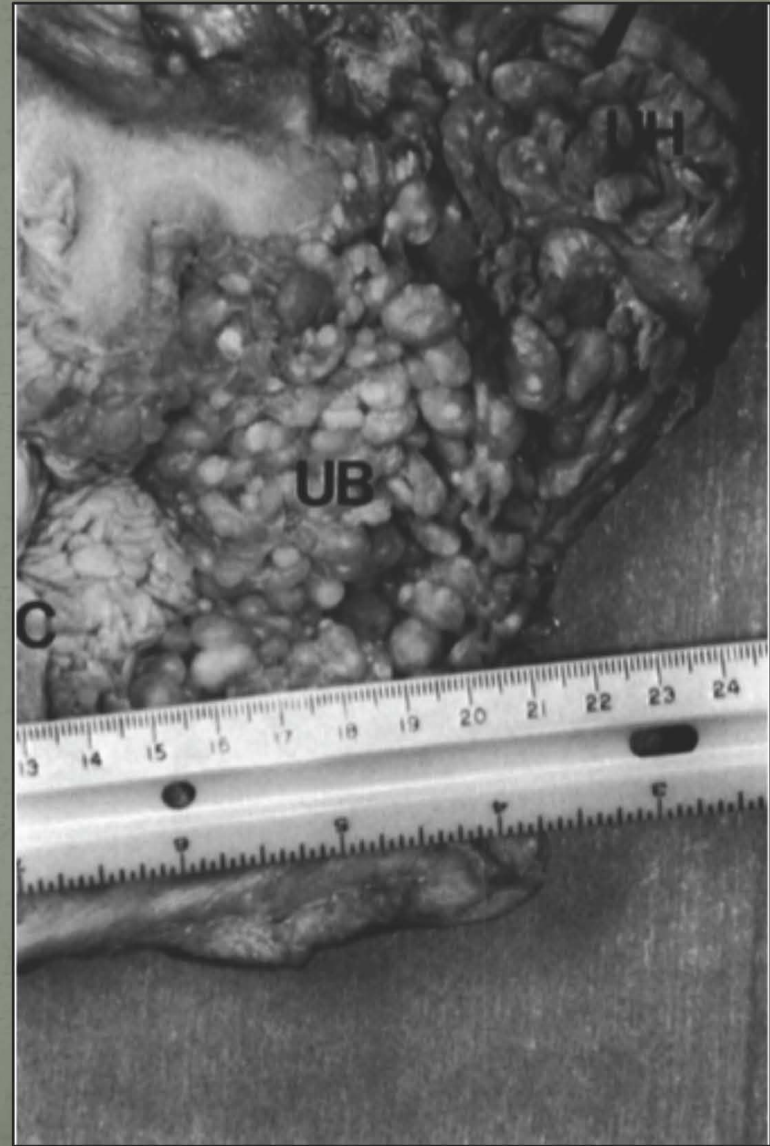
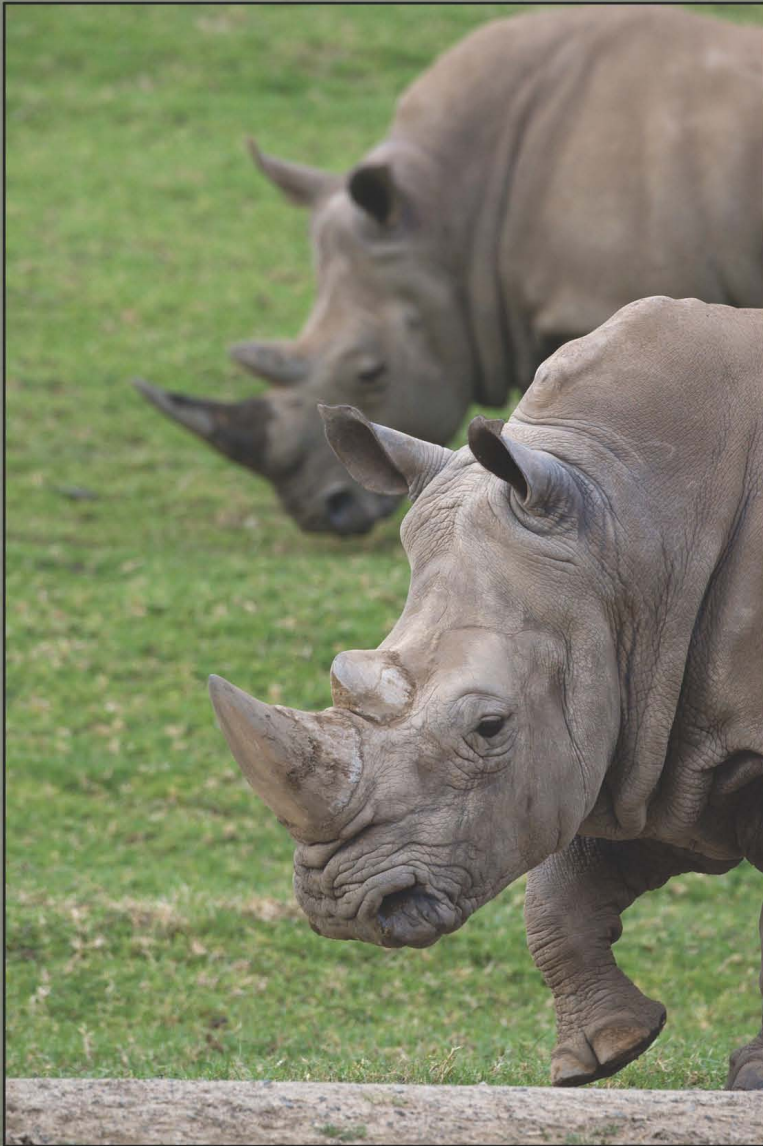


A new recipe for southern white rhinoceros breeding success?



Christopher Tubbs, Ph.D.
San Diego Zoo Institute for Conservation Research
2017 Rhino Keeper Workshop
August 2017

Captive-born female SWR struggle to reproduce



Endocrine disrupting chemicals (EDCs)



"Really?"

Yes...

desPLEX[®]

to prevent ABORTION, MISCARRIAGE and
PREMATURE LABOR

*recommended for routine prophylaxis
in ALL pregnancies...*

96 per cent live delivery with **desPLEX**
in one series of 1200 patients*—
— bigger and stronger babies, too.¹

No gastric or other side effects with **desPLEX**
— in either high or low dosage^{2,4,5}

(Each **desPLEX** tablet starts with 25 mg. of diethylstilbestrol, U.S.P., which is then ultramicronized to smooth and accelerate absorption and activity. A portion of this ultramicronized diethylstilbestrol is even included in the tablet coating to assure prompt help in emergencies. **desPLEX** tablets also contain vitamin C and certain members of the vitamin B complex to aid detoxification in pregnancy and the effectuation of estrogen.)

For further data and a generous trial supply of **desPLEX**, write to:
Medical Director

REFERENCES

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2. Gilman, L., and Replemis, A.: *N. Y. St. J. Med.* 56:2822, 1956.
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GRANT CHEMICAL COMPANY, INC., Brooklyn 26, N.Y.

Figure 2
Medical journal advertisement for prenatal tablets with vitamins and diethylstilbestrol

Exposure to EDCs: timing is critical



Phytoestrogens are potent EDCs

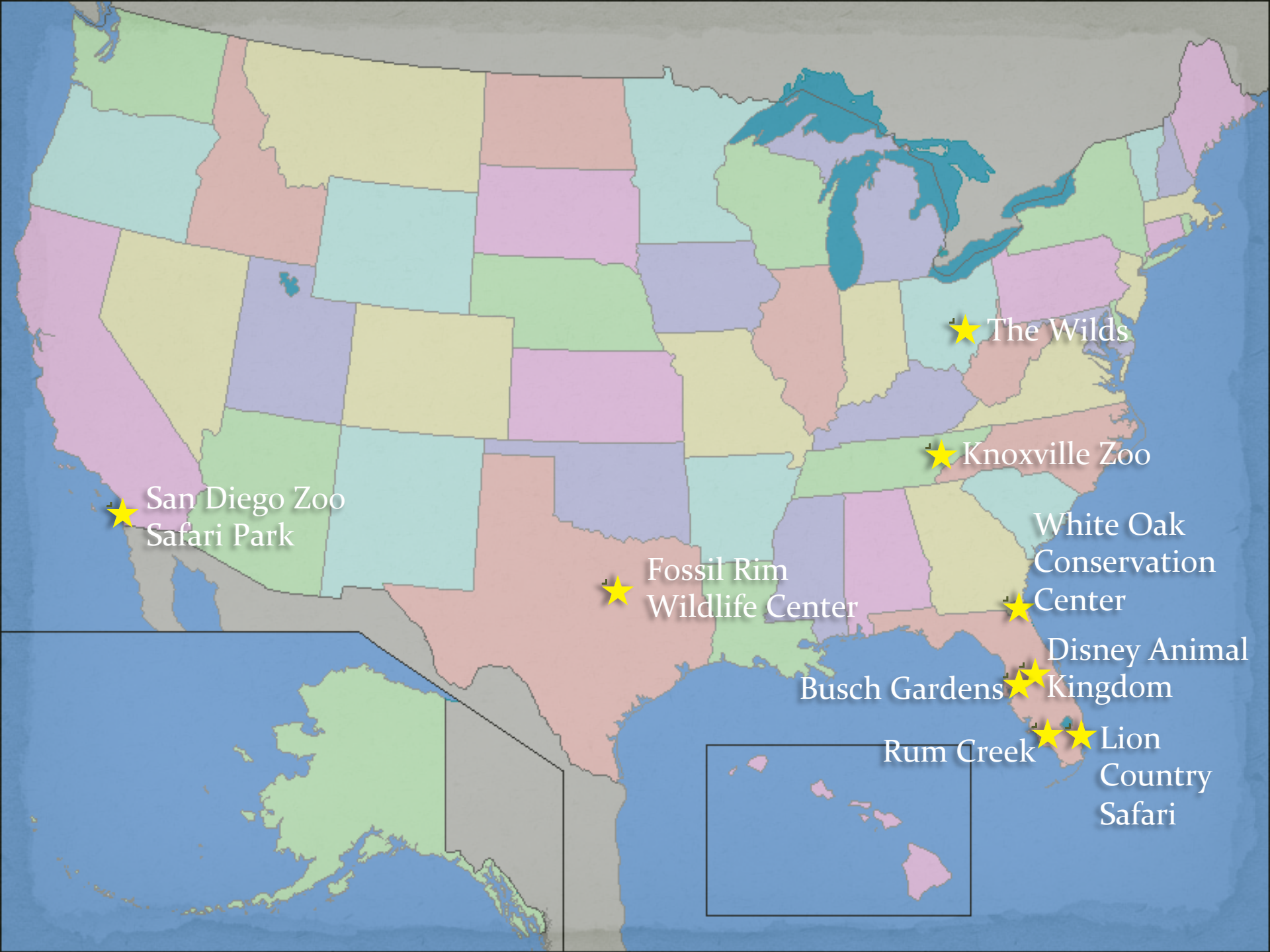


Proposed mechanism of phytoestrogen effects on SWR fertility



phytoestrogens





★ San Diego Zoo
Safari Park

★ Fossil Rim
Wildlife Center

★ The Wilds

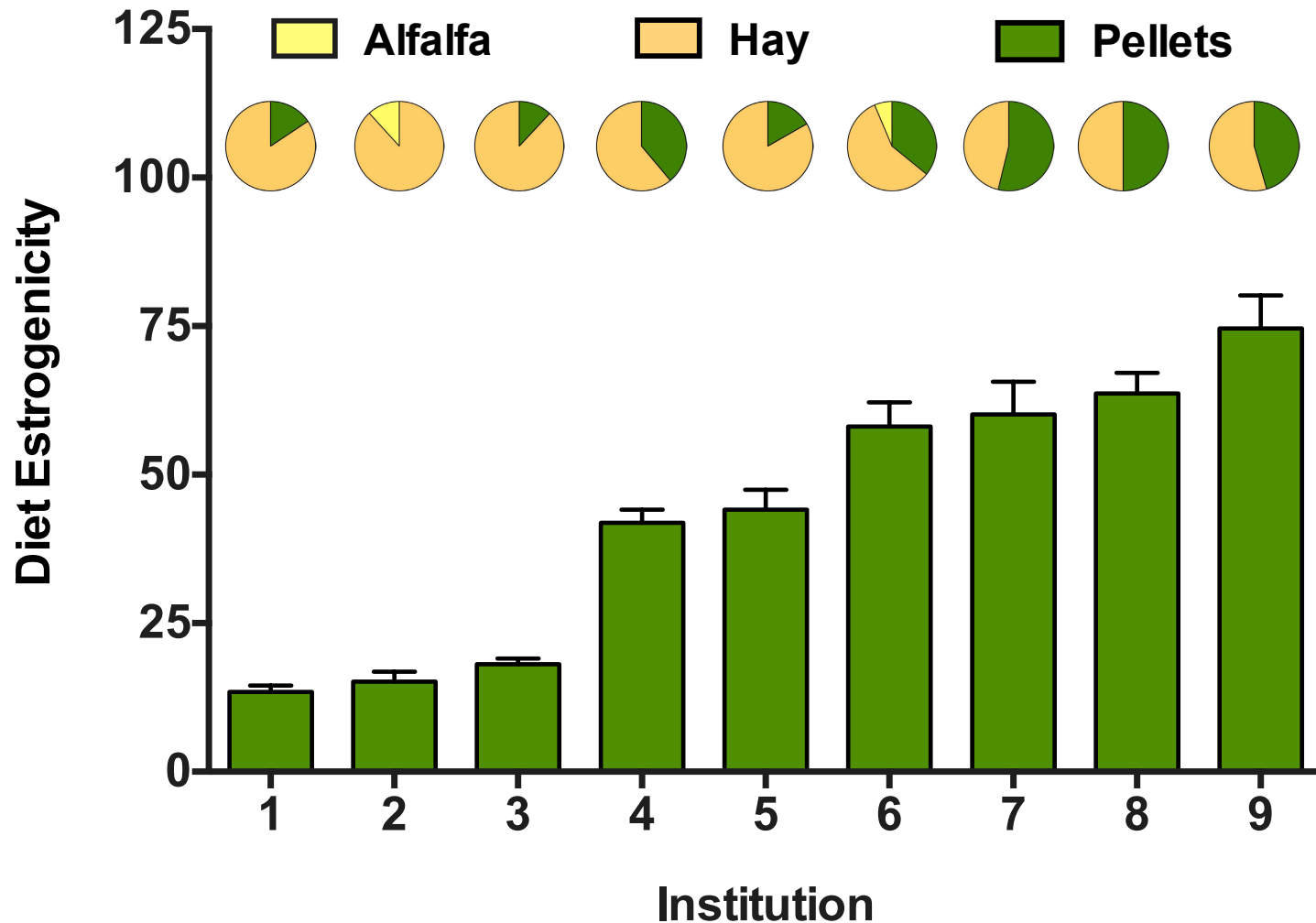
★ Knoxville Zoo

★ White Oak
Conservation
Center

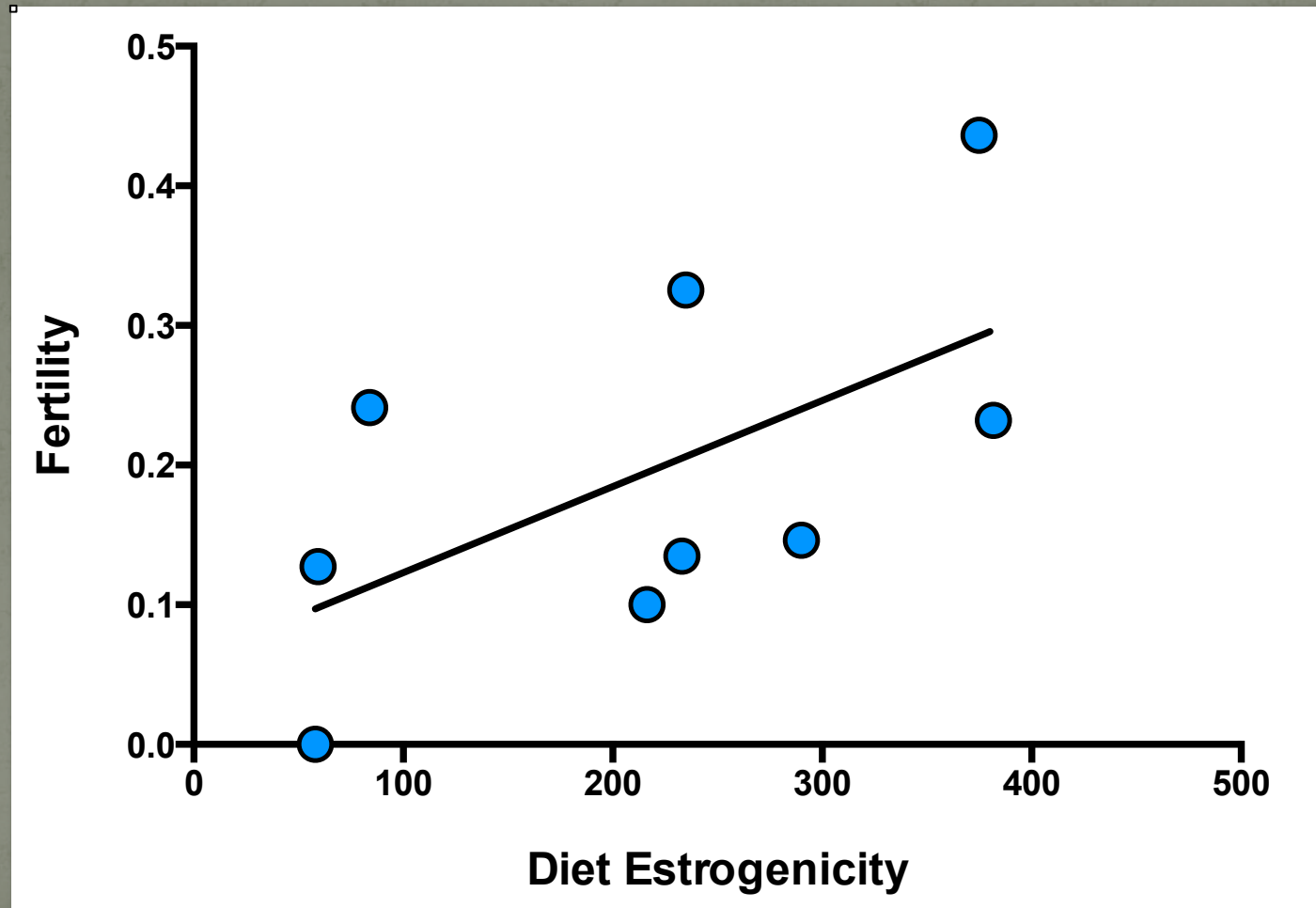
★ Disney Animal
Kingdom
Busch Gardens

★ Rum Creek
★ Lion
Country
Safari

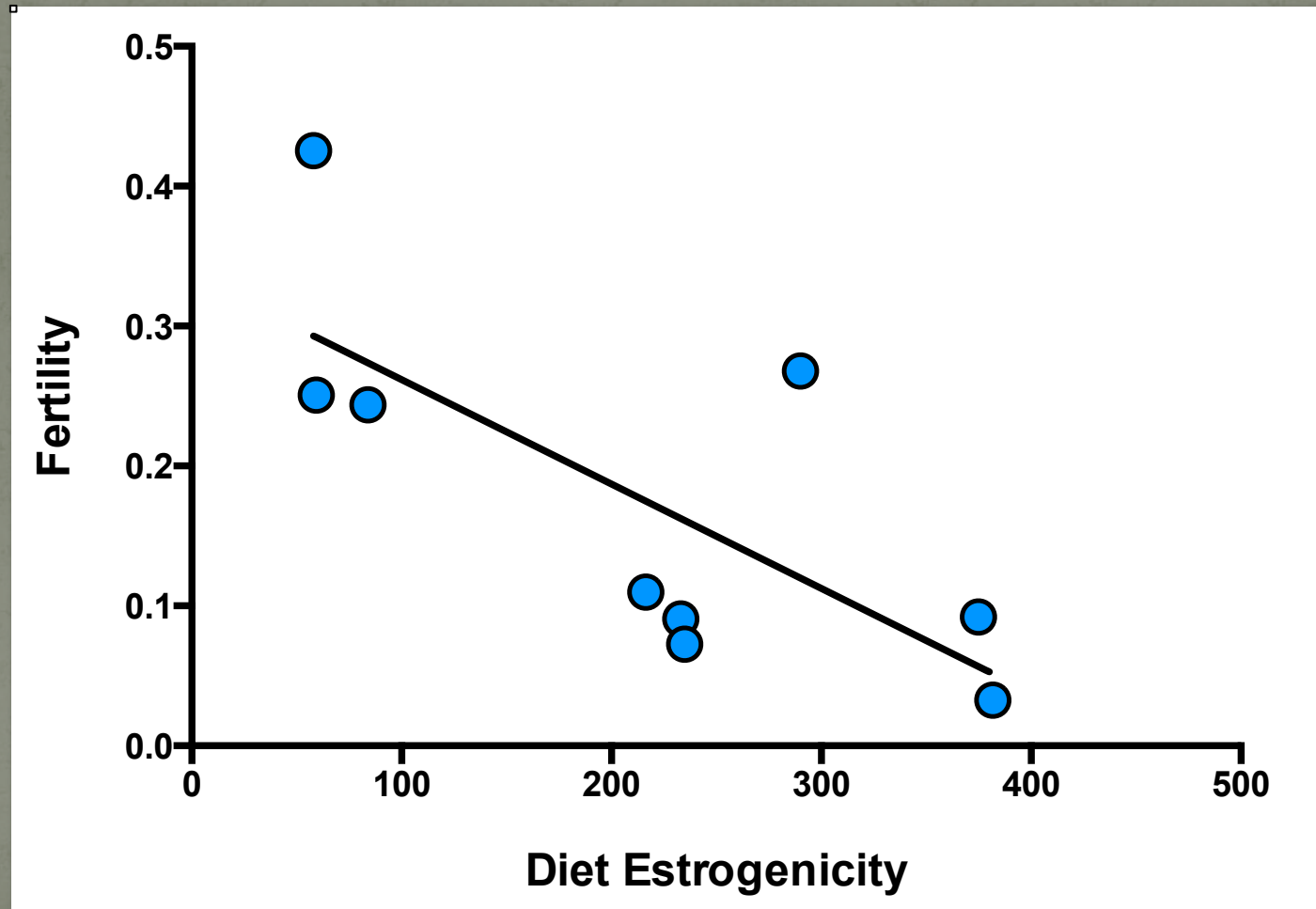
ESR activation by captive diets



Relationship between diet and fertility: Wild-born females



Relationship between diet and fertility: captive-born females

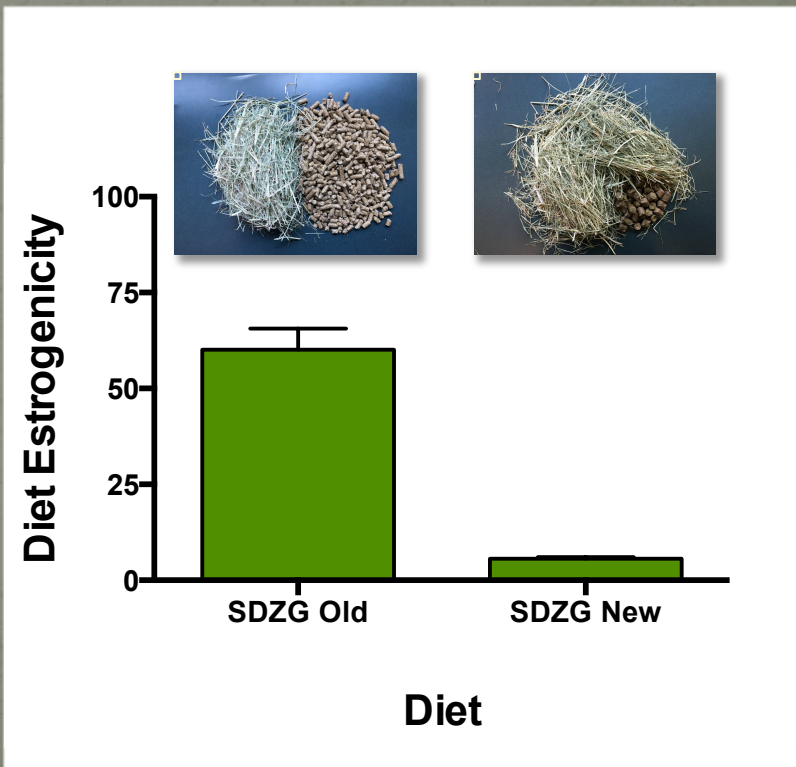


What are we doing about it?

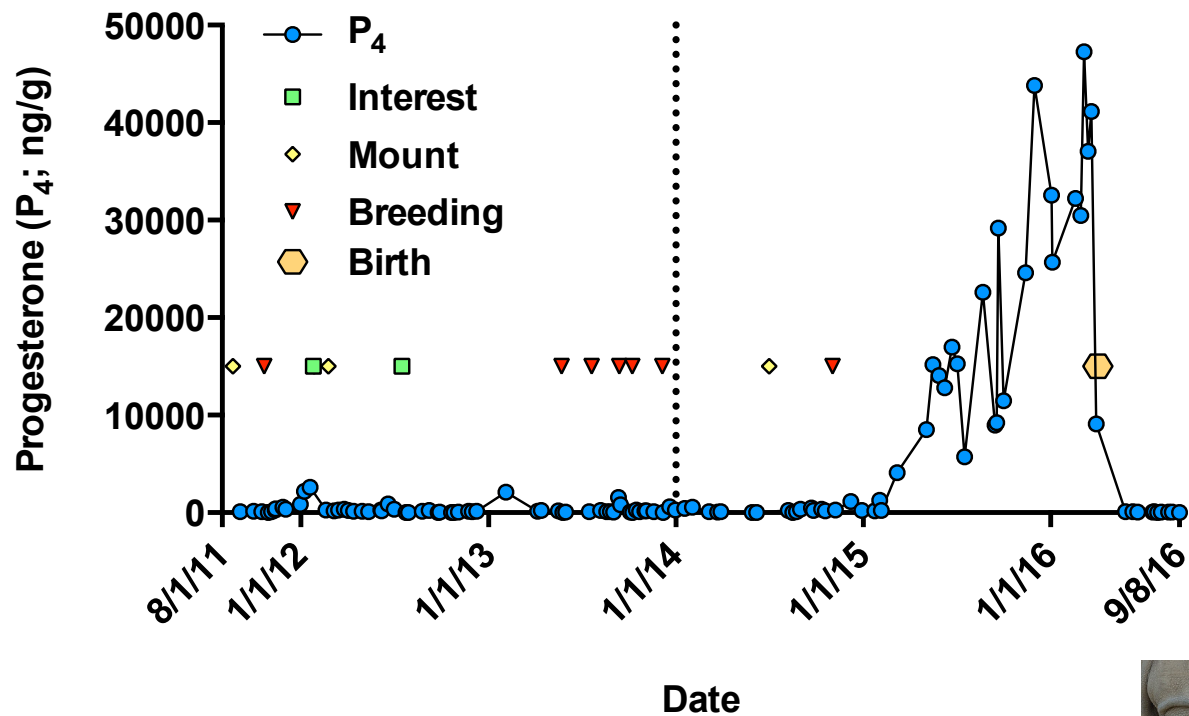
- Exclusion feeders



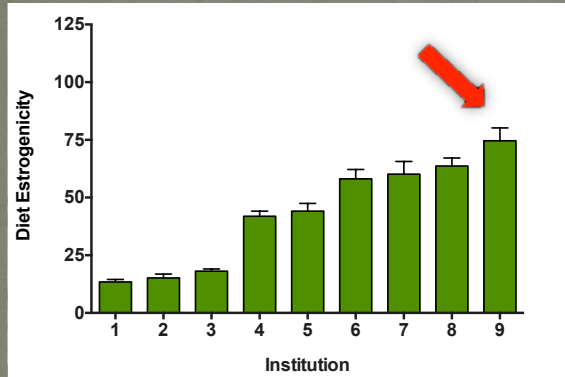
- Low-phytoestrogen pellet/
new diet



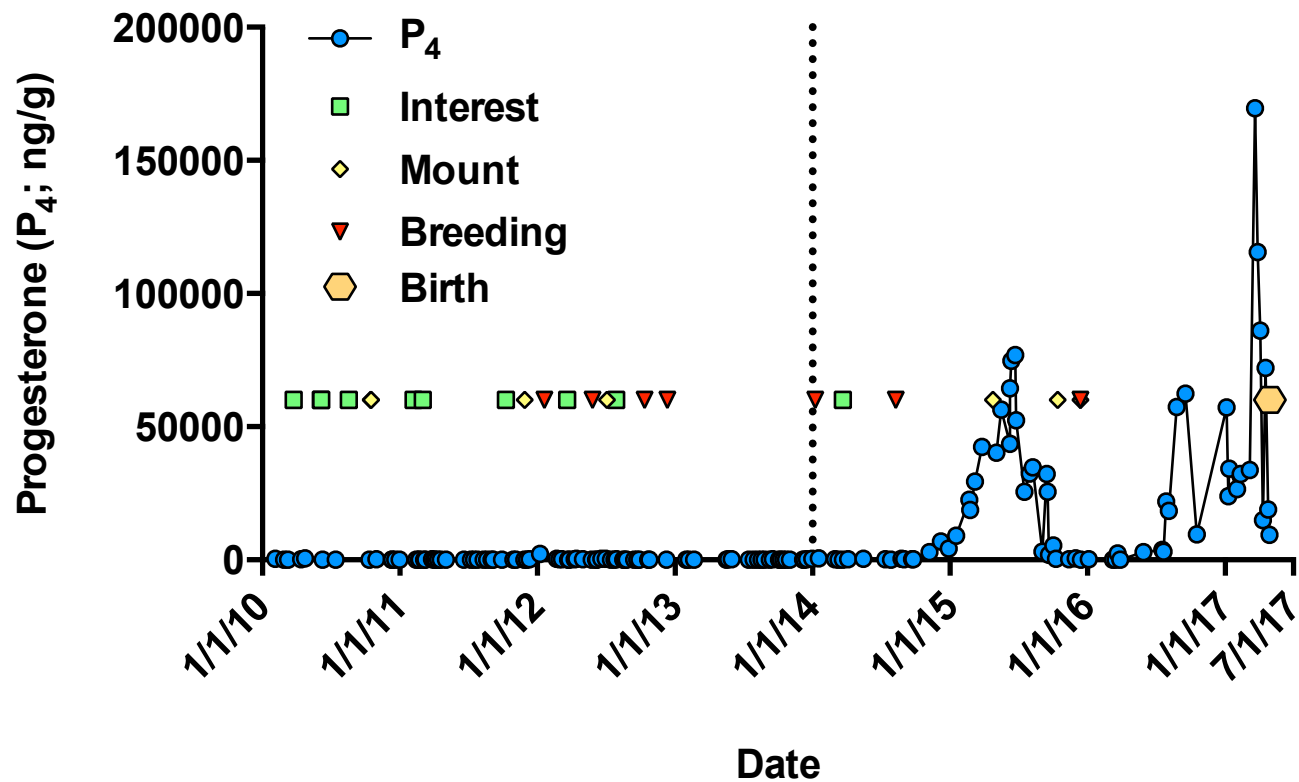
Recent developments



Recent developments



Recent developments



Proposed mechanism of phytoestrogen effects on SWR fertility



phytoestrogens



Reduce phytoestrogens



