Week 3 activity: Stage-structured population growth

This week's activity centers around a paper that describes how basic population biology modeling has translated in to critical conservation action for endangered sea turtle populations. The activity has three components:

1. Watch this video about Leslie Projection Matrices (also discussed in class on Wednesday)
2. Read the paper "A Stage-Based Population Model for Loggerhead Sea Turtles and Implications for Conservation" (Link), and answer the questions below.
3. Watch this video showing Turtle Excluder Devices at work.

Questions about "A Stage-Based Population Model for Loggerhead Sea Turtles and Implications for Conservation"

1. As of the time when this paper was written (1987), what was the primary focus of turtle conservation efforts? Why was this the primary focus of conservation activity?

2. The authors simplify the turtle life cycle, which can extend more than 50 years, into just 7 different stages. Explain in your own words (a) why they chose to do this, (b) what these stages represent, and (c) the reproductive dynamics of these stages.

3. In your own words, what does the "Elasticity" of a stage represent? What does Figure 4A tell us about the elasticity of different life stages?

4. If the authors had to pick a *single* life stage that should be the target of conservation, which one do you think they would advocate for? Why?

5. According to the authors, what is an uncomfortable possibility that conservation biologists needed to address about turtle conservation efforts? Where else do you think such lessons are applicable in our contemporary lives?