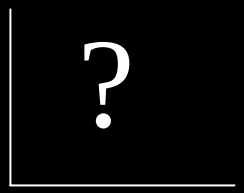
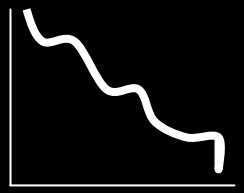
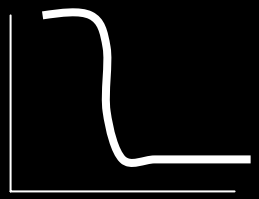
State of Protected Heritage Area Report

- Every 2 years , all 42 National Parks, same variables
- Including,
  - Rate of change in annual NDVI (1km resolution)
  - Area burned (relative to expectation from fire record)
  - Night-time image of earth (proportion of greater park ecosystem illuminated)
  - Census data
  - Interior road density (km/km^2)







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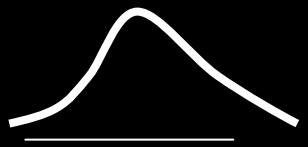
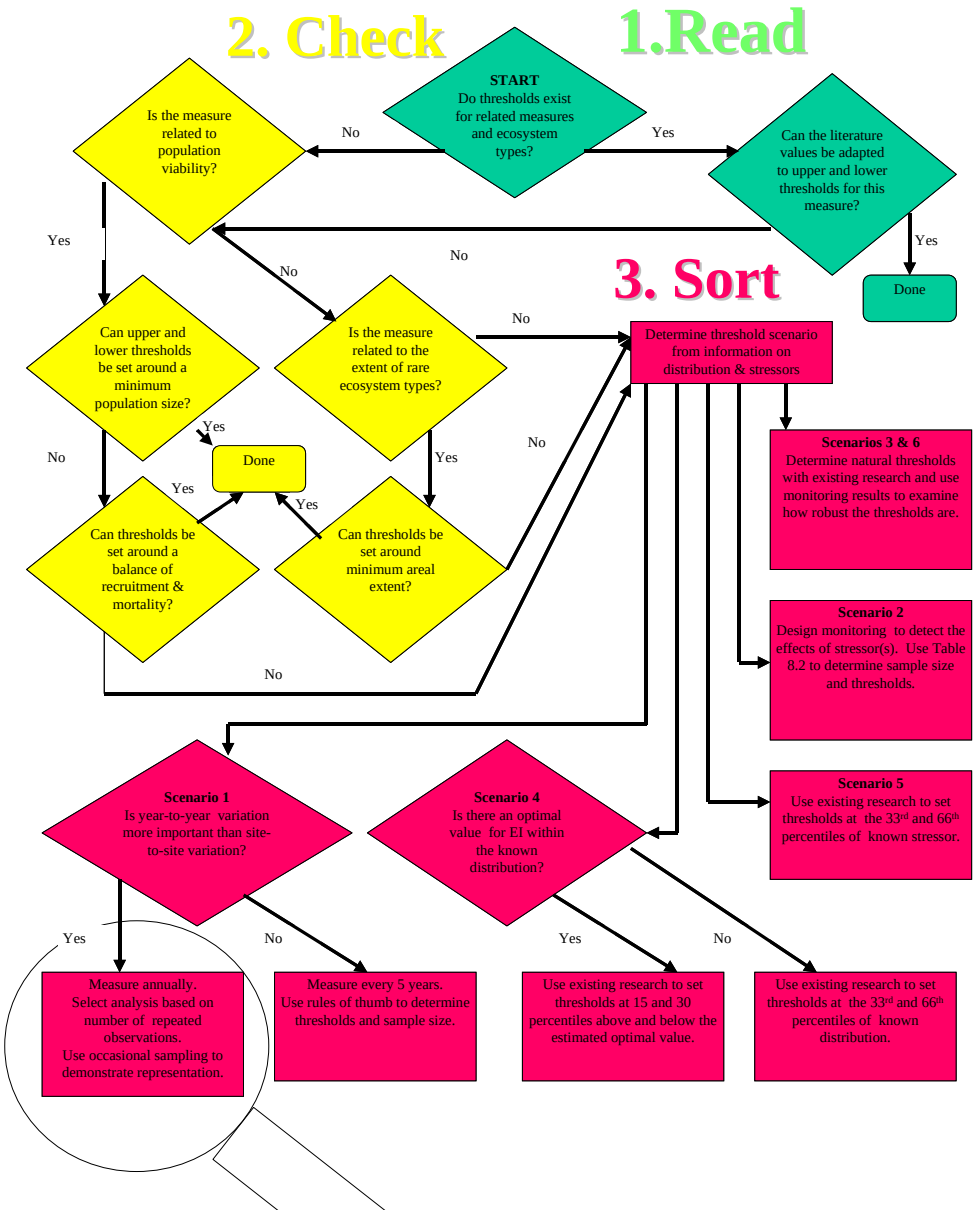


1. Change detection	2. Stress detection	3. Natural threshold detection
4. Distribution segments	5. Segments with stressor	6. Segments with natural thresholds


2. Check
1.Read
START
Do thresholds exist for related measures and ecosystem types?
No
Yes
Is the measure related to population viability?
Can the literature values be adapted to upper and lower thresholds for this measure?
Yes
Done
Yes
No
No
3. Sort
Can upper and lower thresholds be set around a minimum population size?
Is the measure related to the extent of rare ecosystem types?
No
Determine threshold scenario from information on distribution & stressors
Yes
Done
No
Yes
Yes
Yes
No
Can thresholds be set around a balance of recruitment & mortality?
Can thresholds be set around minimum areal extent?
No
Scenarios 3 & 6
Determine natural thresholds with existing research and use monitoring results to examine how robust the thresholds are.
Scenario 2
Design monitoring to detect the effects of stressor(s). Use Table 8.2 to determine sample size and thresholds.
Scenario 5
Use existing research to set thresholds at the 33rd and 66th percentiles of known stressor.
Scenario 1
Is year-to-year variation more important than site-to-site variation?
Scenario 4
Is there an optimal value for EI within the known distribution?
Yes
No
Yes
No
Measure annually. Select analysis based on number of repeated observations. Use occasional sampling to demonstrate representation.
Measure every 5 years. Use rules of thumb to determine thresholds and sample size.
Use existing research to set thresholds at 15 and 30 percentiles above and below the estimated optimal value.
Use existing research to set thresholds at the 33rd and 66th percentiles of known distribution.

Minimum # of previous observations	Analysis	Upper threshold	Lower threshold
6	One sample t-test of difference from previous observations	1 standard deviation	2 standard deviations
6	Regression (t-test of slope)	2 standard errors	4 standard errors
10 (at least 5 “in control”)	Statistical process control	• 7 points above or below mean • 7 points with same trend • 14 points alternating above and below mean • 14 points <1 SE from mean	• 4 of 5 points between 1 and 2 SE from mean • 2 of 3 points >2 SE from mean • 1 point >3 SE from mean
30	% change per year	2% of difference between 90th percentile and 10th percentile	4% of difference between 90th percentile and 10th percentile
30	Autoregressive Integrated Moving Average	1.5 standard errors	2.5 standard errors