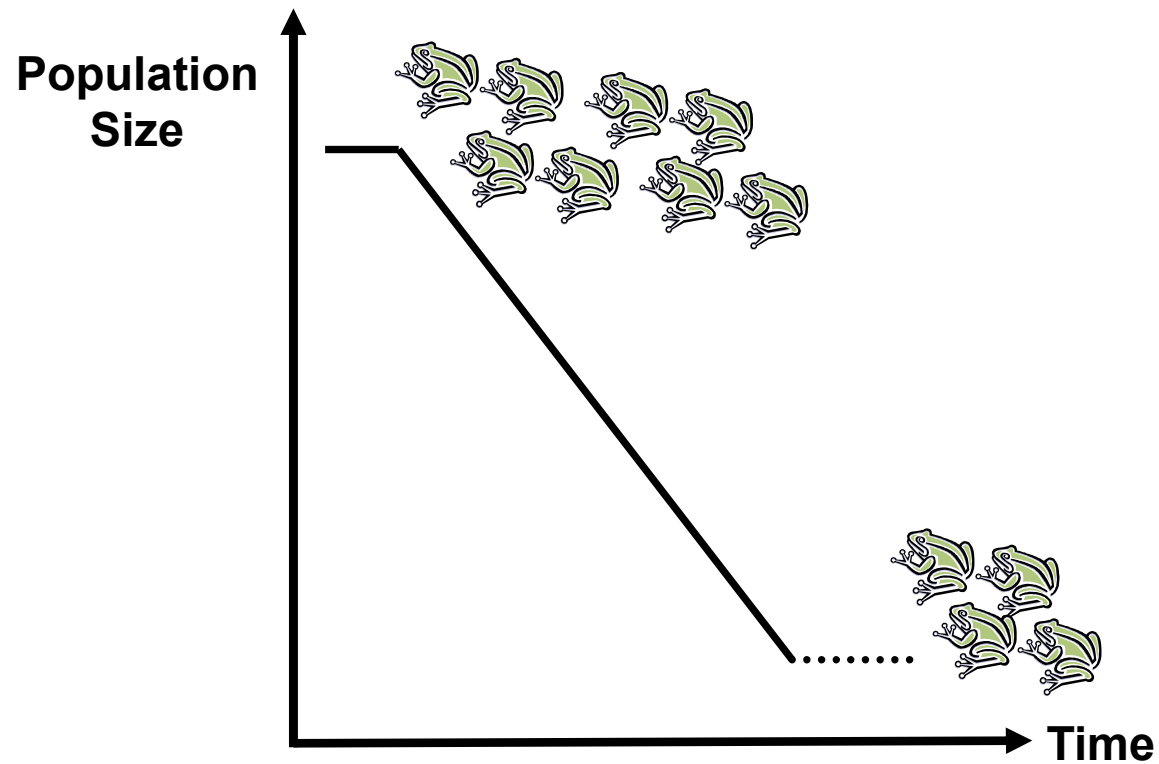
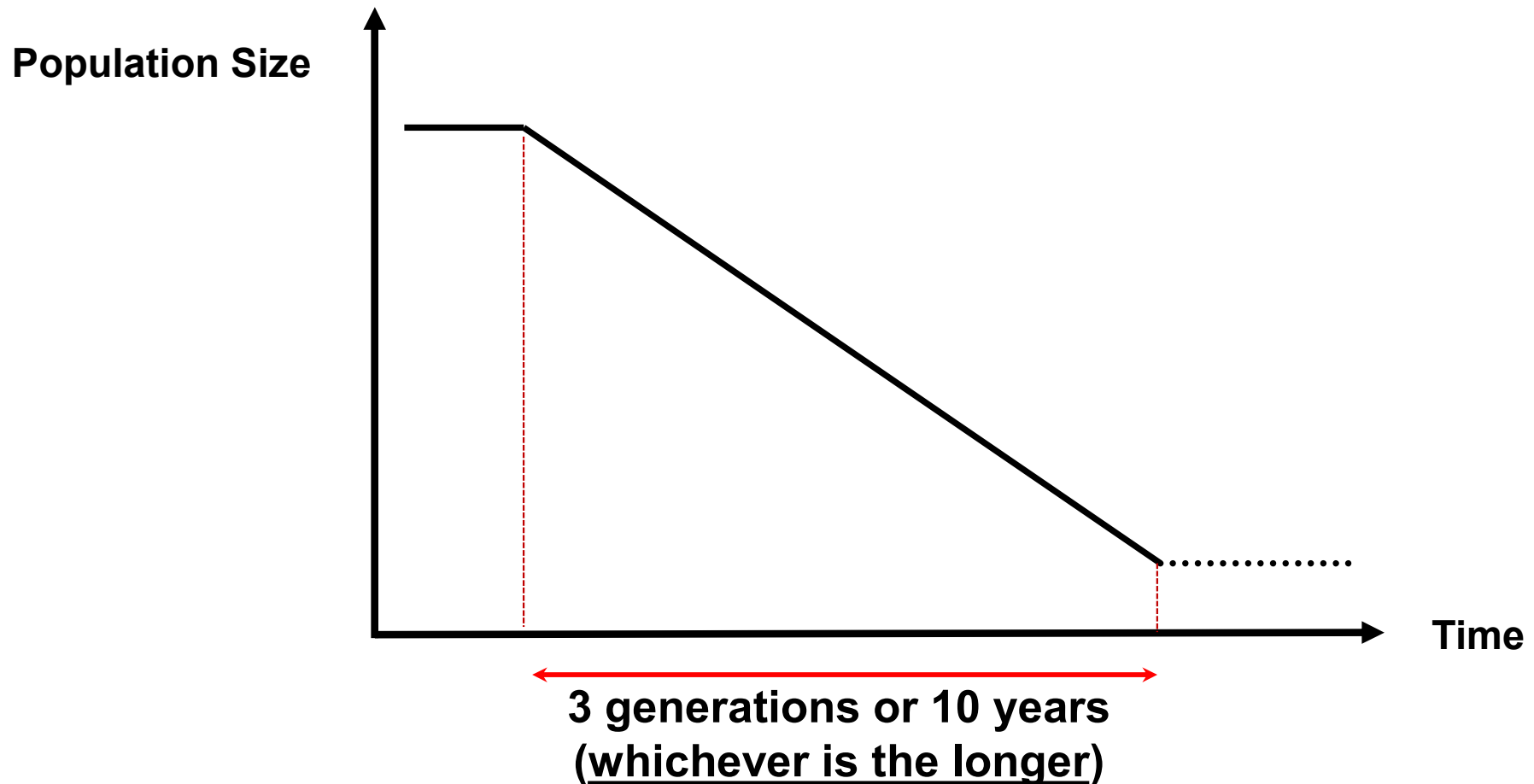




Red List Criteria: Criterion A

Past, present or future population reduction





To use criterion A, we first need to know:

What is the generation length? Or is it likely that a three generation time period is less than 10 years?

Based on **any** of four subcriteria:

	Timing of Reduction		Reduction Conditions		
	Past	Future	Causes Understood	Causes Stopped	Effects are reversible
A1	✓		✓	✓	✓
A2	✓				
A3		✓*			
A4	✓	✓*			

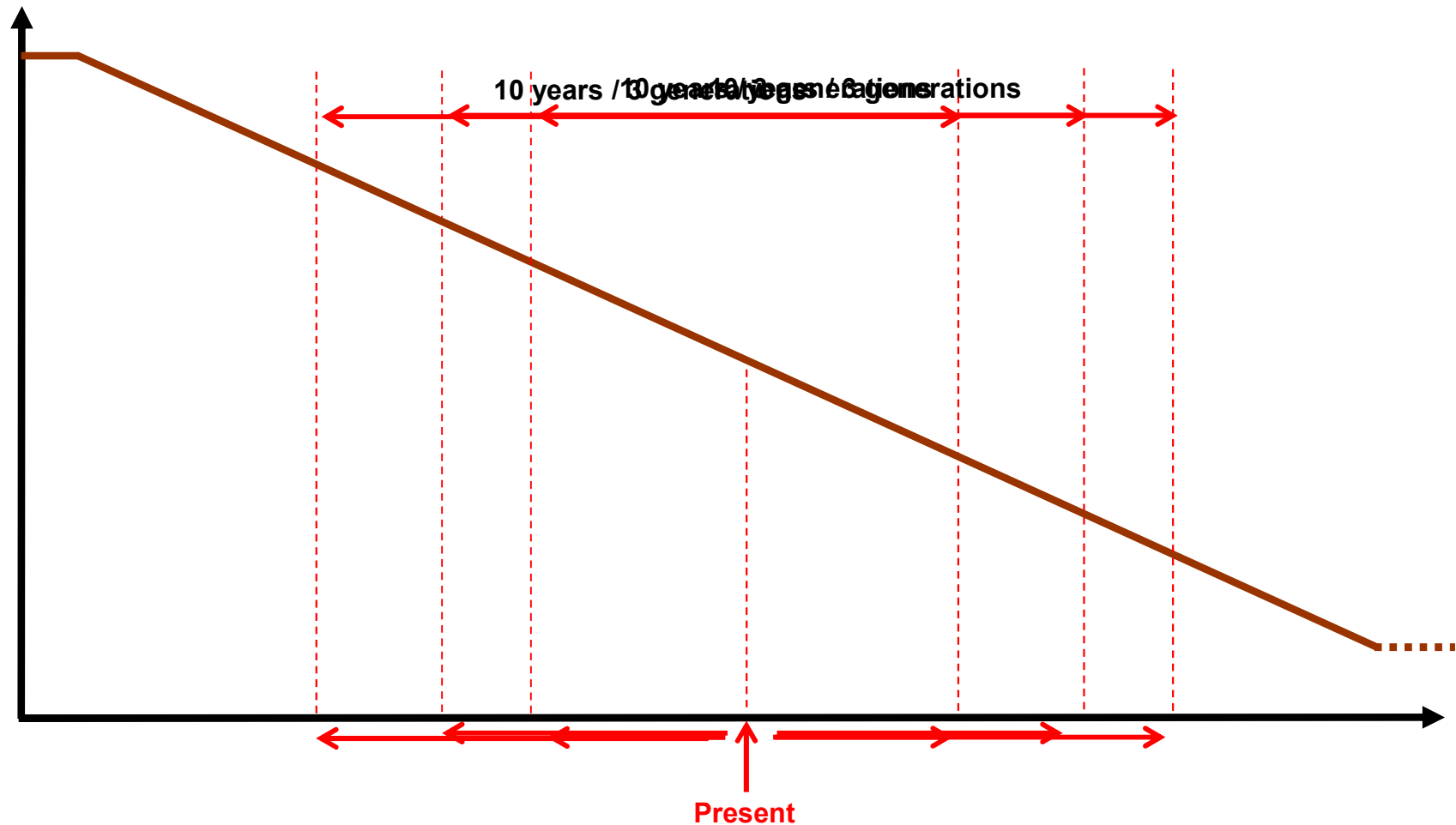
* Up to a maximum of 100 years into the future

A. Population size reduction. Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4

	Critically Endangered	Endangered	Vulnerable
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3 & A4	≥ 80%	≥ 50%	≥ 30%
<p>A1 Population reduction observed, estimated, inferred, or suspected in the past where the causes of the reduction are clearly reversible AND understood AND have ceased.</p> <p>A2 Population reduction observed, estimated, inferred, or suspected in the past where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.</p> <p>A3 Population reduction projected, inferred or suspected to be met in the future (up to a maximum of 100 years). <i>[(a) cannot be used for A3]</i></p> <p>A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.</p>	<p><i>based on any of the following:</i></p>	<p>(a) direct observation <i>[Except A3]</i></p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy (AOO), extent of occurrence (EOO) and/or habitat quality</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.</p>	

Criterion A4

A “moving window” reduction





Criterion A4

A “moving window” reduction

Criterion A2

Reduction (1987-2017)

33% = Vulnerable

Assessment year →

Past census data gathered every 2 yrs		Reduction rate over next 30 yrs (3 generations)	Estimated future populations	
Year	Population size		Year	Population size
1987	10,000	33%	2017	6,700
1989	10,000	38%	2019	6,160
1991	10,000	43%	2021	5,680
1993	10,000	47%	2023	5,260
1995	10,000	51%	2025	4,900
1997	10,000	54%	2027	4,600
1999	9,940	56%	2029	4,600
2001	9,820	57%	2031	4,180
2003	9,640	58%	2033	4,060
2005	9,400	57%	2035	4,000
2007	9,100	56%	2037	4,000
2009	8,740	54%	2039	4,000
2011	8,320	52%	2041	4,000
2013	7,840	49%	2043	4,000
2015	7,300	45%	2045	4,000
2017	6,700	40%	2047	4,000

Criterion A4

Reduction (2003-2033)

58% = Endangered

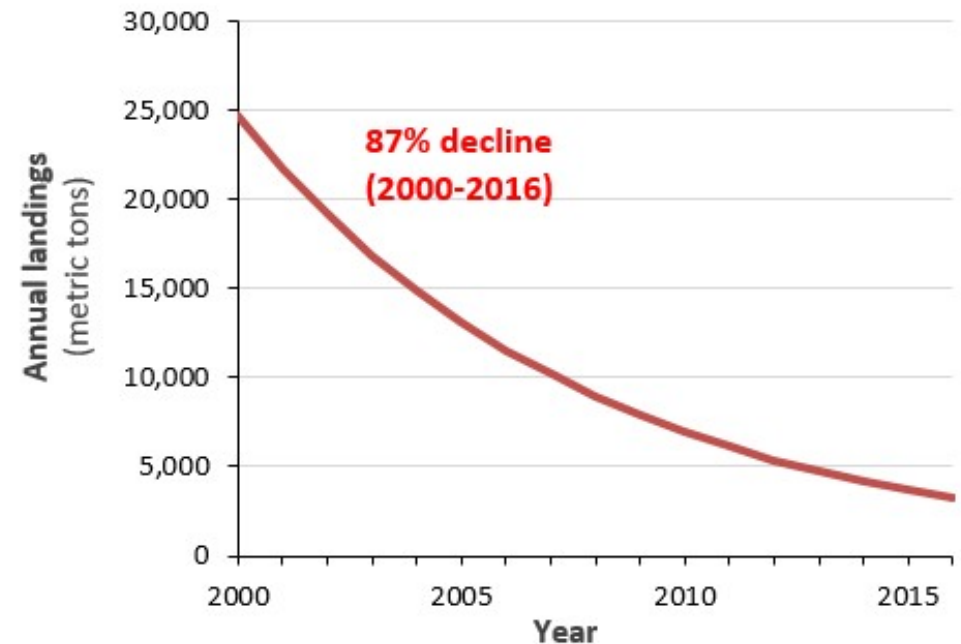
Criterion A3

Reduction (2017-2047)

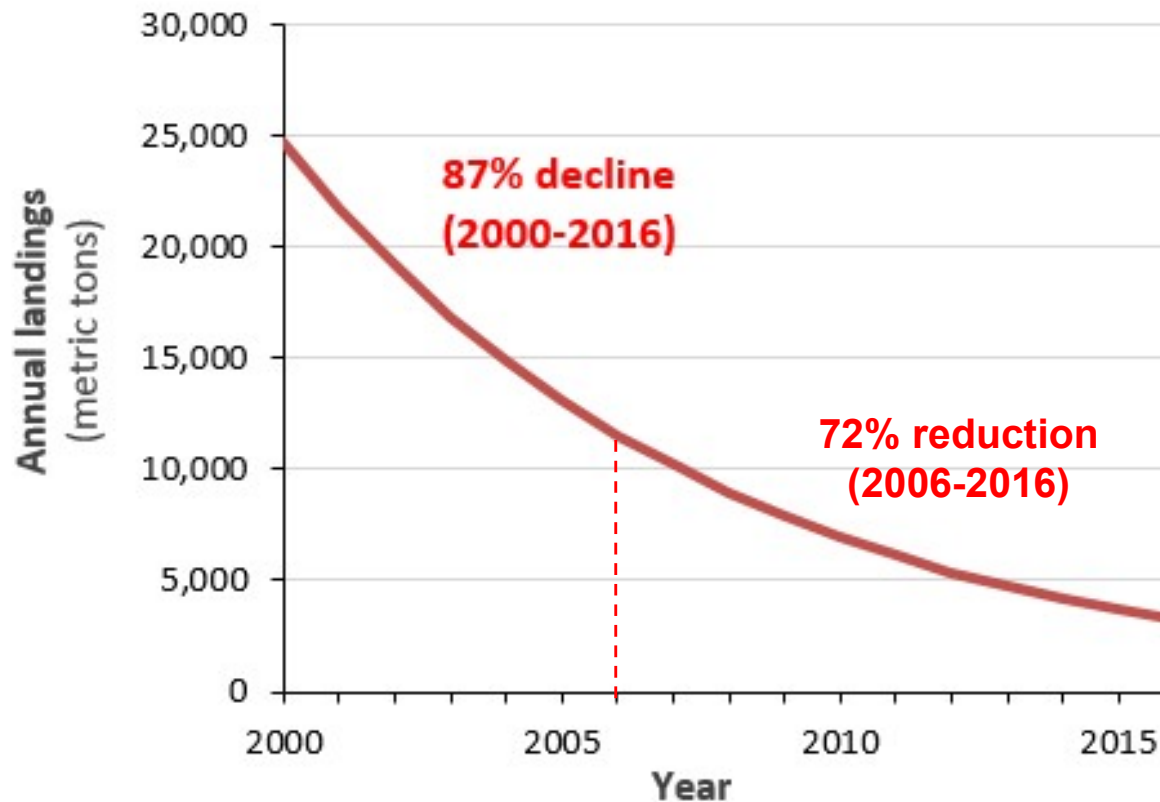
40% = Vulnerable

Criterion A example: a marine fish

- Assessment being carried out in 2016
- Occurs on the eastern Atlantic along the coast of North Africa.
- Generation length 3 years.
- A commercial species, caught by trawlers and small longliners and gillnetters. Also caught as bycatch in shrimp fisheries.
- Annual catch data from early 1980s to 2000 relatively stable at 23,000-25,000 t. Data from 2000-2016 indicate a decline of 87% (from 24,688 t in 2000 to 3,252 t in 2016).
- The species continues to decline as it is still being targeted by commercial fisheries.



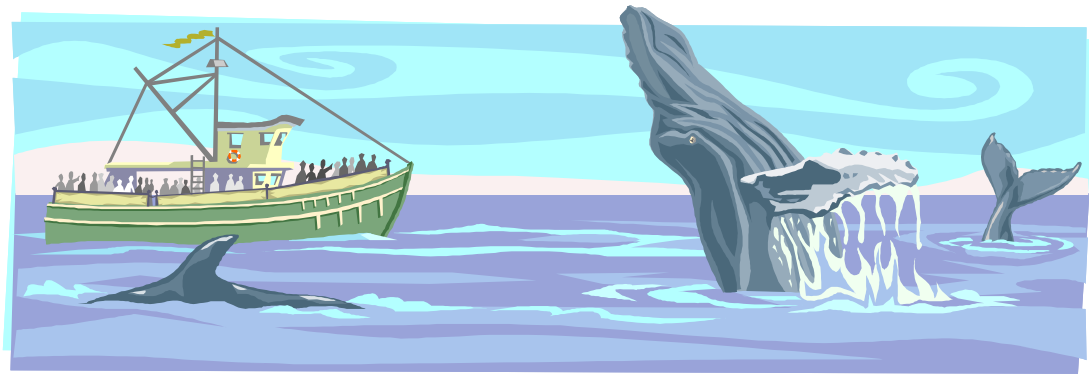
Criterion A example: a marine fish



EN A2bd

- Three generations = 9 years. Measure reduction over **10 years**
- Reduction over **past** 10 years (2006-2016) = **72%**. EN A1 or EN A2...?
- Cause of reduction has not stopped. **EN A2**
- Reduction measurement based on:
 - Fisheries data (index of abundance). **EN A2b**
 - Exploitation **EN A2d**

Criterion A example: a whale



- Generation length ~ 31 years
- Population decline 70-90% over past 3 generations. Populations appear to be recovering.
- Population declines caused by commercial whaling:
 - Cause and effects of decline is fully understood
 - Commercial whaling has stopped
 - Pop decline appears to be reversible
- Percentage decline based on:
 - Whale sightings and observations
 - Stock monitoring surveys and reports
 - Whaling statistics and records
- Given uncertainty in the decline and current stability and population recovery, is listed as EN.

CR/EN A1

CR/EN A1a

CR/EN A1b

CR/EN A1d

EN A1abd

Criterion A example: a tree



- Generation length unknown; ~ 50 years in similar species
- Endemic to dry forest, which have been intensively cut for agriculture over last century. Today only highly fragmented forest patches remain, and suffer:
 - Intense predation from deer and cattle
 - Uncontrolled fires
- Estimated 95% habitat loss over past 150 years: given population densities & distribution, suspected population decline of at least 50%. **EN A2**
- Habitat loss ongoing. Regeneration close to zero due to intensive grazing; seeds also consumed by butterfly larvae – suspected population decline of up to 80% over next 100 years. **CR/EN A3**
- Population decline rate based on:
 - Massive habitat loss **A2+3c**
 - Introduced predators **A2+3e**

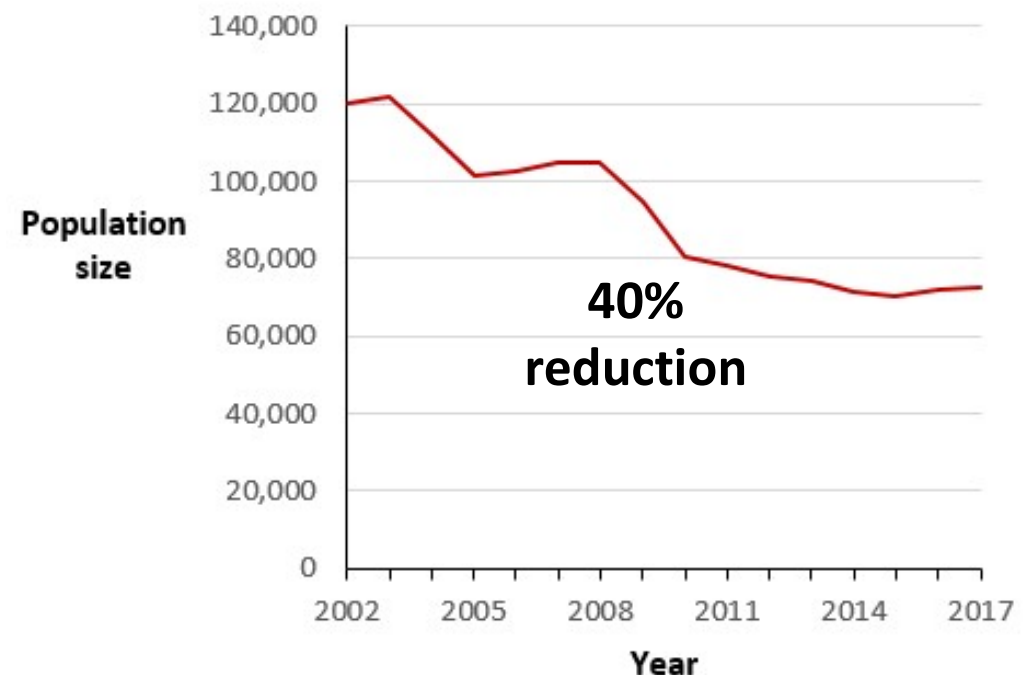
EN A2ce+3ce

Near Threatened (NT) and Criterion A :

Close to meeting the threshold for Vulnerable

- Population has undergone a **40%** reduction in the last three generations.
- Causes of reduction are understood, have stopped, and the reduction is reversible.

**Near Threatened
(nearly meets VU A1)**

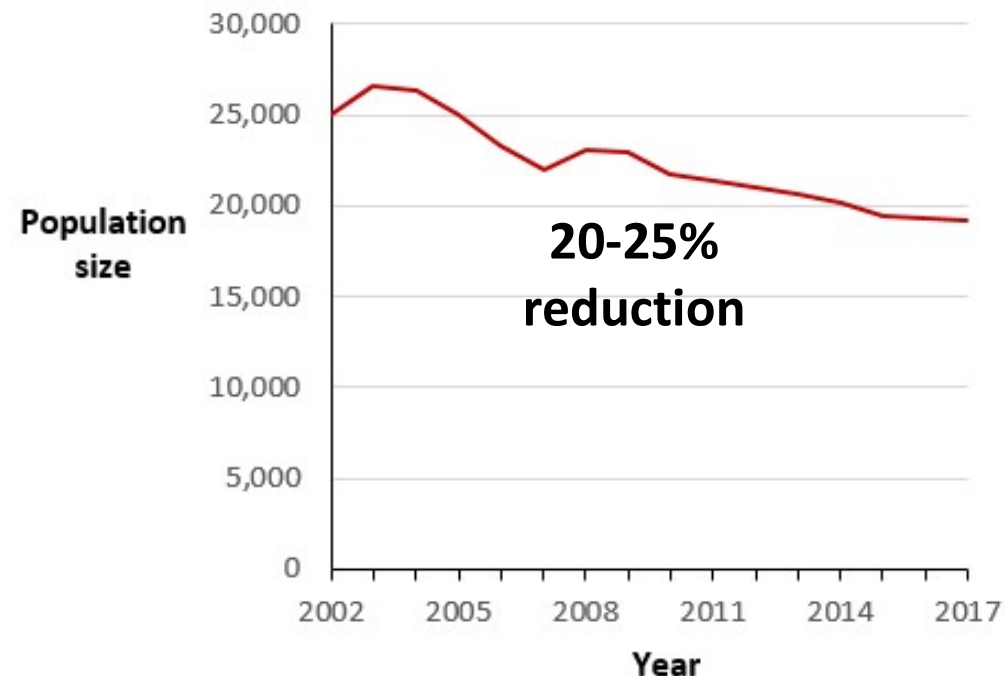


Near Threatened (NT) and Criterion A :

Close to meeting the threshold for Vulnerable

- Population has undergone a **20-25%** reduction in the last three generations.
- We don't know what has caused this reduction, and the population appears to still be declining.

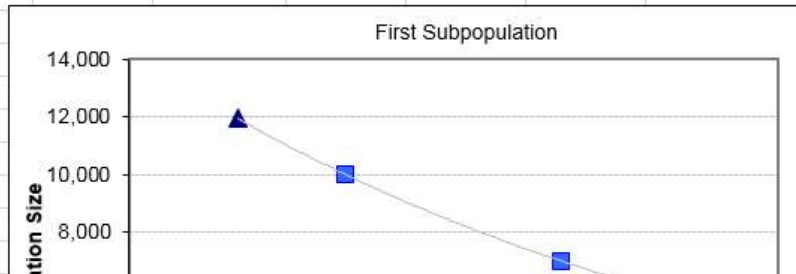
**Near Threatened
(nearly meets VU A2)**



CriterionA_Workbook.xls

(<https://www.iucnredlist.org/resources/criterion-a>)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Calculating 3 generation decline with exponential assumption and only 2 years of data													
2	Instructions: Enter data only in blue-highlighted cells. The result is in the yellow-highlighted cells.													
3	Notes: constant exponential rate is assumed													
4	Generation time (years)=	15	Assessment period=	45	years	...								
5	Assessment year=	2005	3 generations ago=	1960	...									
6														
7	Year 1	Population in year 1	Year 2	Population in year 2	# years between 3-gen ago and Year1	# years btw Year2 and present	# years btw estimates	Annual change	Change btw 3-gen ago & Yr1	Change btw Yr2 & present	Population 3 gen ago:1960	Population current:2005	3-gen change	
8	1970	10,000	1990	7,000	10	15	20	98.23%	84%	77%	11,952	5,357	-55.2%	(reduction)
9														
10														
11														
12														
13														
14	For graph only:													
15	Year	Predicted	Year	Observed										
16	1960	11952	1970	10,000										
17	2005	5357	1990	7,000										
18	1970	10000												
19	1990	7000												
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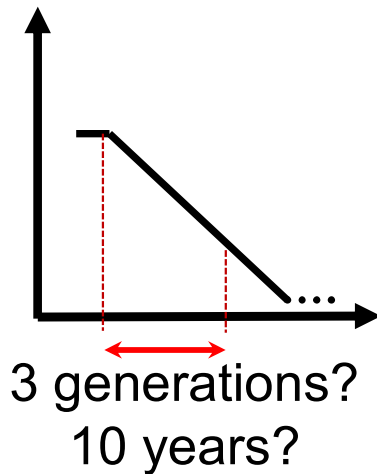


Criterion A2: **EN**
 Criterion A1: **VU**



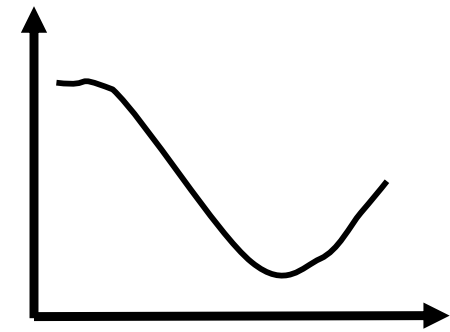
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 Categories and Criteria**

Criterion A points to remember:



To use criterion A, an estimate of the **generation length** is needed

Reduction in population size may be a one-off event...



... Or it may be ongoing

Criterion A points to remember:

Criterion A1 uses higher thresholds than A2, A3 and A4

A. Population size reduction. Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4			
	Critically Endangered	Endangered	Vulnerable
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3 & A4	≥ 80%	≥ 50%	≥ 30%

A1 Population reduction observed, estimated, inferred, or suspected in the past where the causes of the reduction are clearly reversible AND understood AND have ceased.

Criterion A points to remember:

Consider the pattern of population reduction

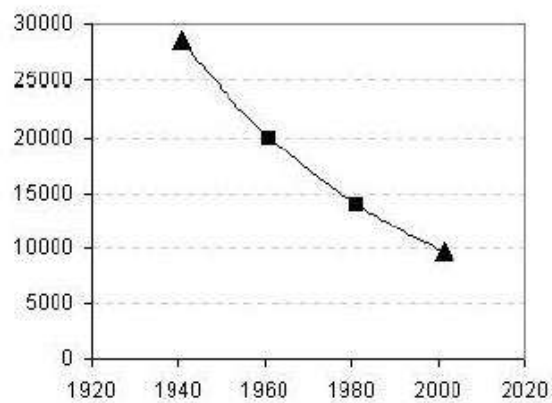


Figure 5.1. Exponential decline

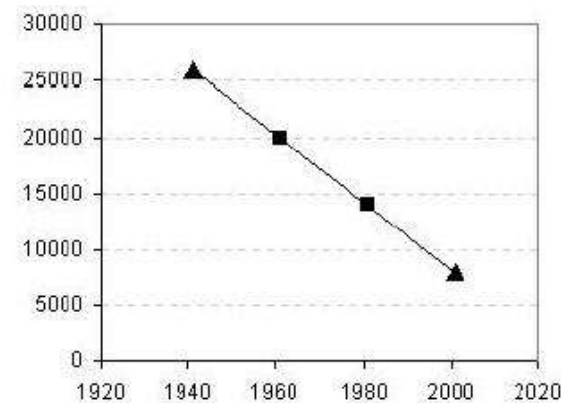


Figure 5.2. Linear decline

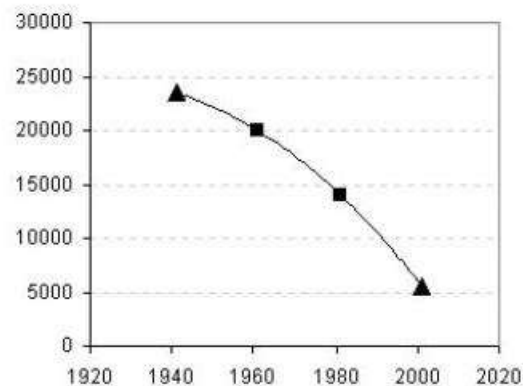
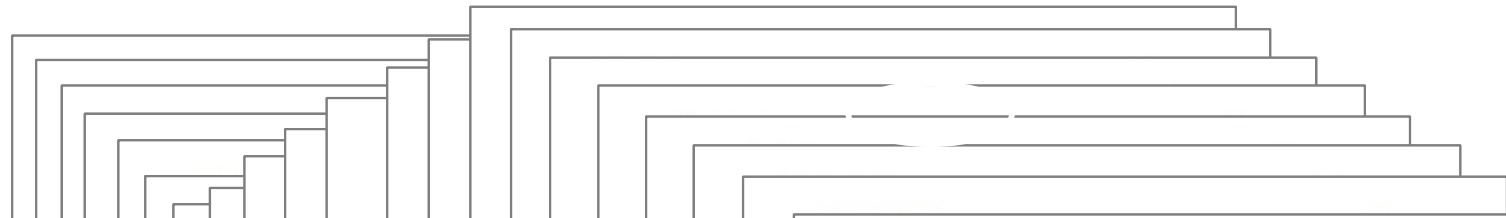



Figure 5.3. Accelerated decline

Refer to Red List Guidelines: sections 4.5 and 5






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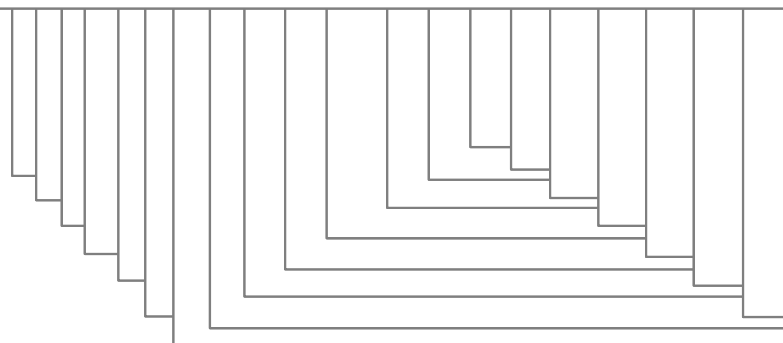
The *Guidelines for Using the IUCN Red List Categories and Criteria* are regularly updated: the current version is **version 14 (August 2019)**. Please check that you have the current version before starting to prepare a Red List assessment.



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Translations of IUCN Red List guidance documents

All of the IUCN Red List guidelines publications are available in English, French and Spanish. Some additional translations are available here.



extent of occurrence (EOO) or area of occupancy (AOO). The taxon must then meet at least TWO of the three options listed for criterion B. The options are (a) severely fragmented or known to exist in no more than x locations, (b) continuing decline, or (c) extreme fluctuation (Table 2.1). Therefore, if a taxon has met the distributional requirement for the Endangered category and option (c) extreme fluctuation, but none of the other options, it would not qualify as Endangered (or Vulnerable) under criterion B. To qualify, it would also have to meet either (a) or (b). An example of the proper use of criterion B is Endangered: Blab(v). This means that the taxon is judged to have an extent of occurrence of less than 5,000 km², the population is severely fragmented or known to exist at no more than five locations, and there is a continuing decline in the number of mature individuals.

Subcriterion (a) requires severe fragmentation and/or limited number of locations. The numbering in the criteria does not allow distinguishing between these two conditions. We recommend that assessors make this distinction by explicitly specifying in their documentation: (1) whether the taxon is severely fragmented, and (2) the number of locations.