23: feral peril

teacher's notes

1) Tim Low's *Feral Peril* is a "must read" in terms of developing an understanding of the scope & impact the introduction of invasive species.

2) Problematic species obviously varies from locality to locality, but there are few localities in or around this continent that haven't been profoundly affected by invasive species.

3) The questions relating to this worksheet are open questions that are designed to promote discussion.

suggested answers

Question 1) Students will need to choose a species that does affect them directly, logically a species found in their area or areas they visit. Answers may not necessarily show a negative effect. Kids on farms, for example, might think that the abundance of rabbits simply means there is good shooting out in their back paddock.

Possible discussion questions:

1) How can we define the term pest?
2) Are pests exclusively exotic, or can indigenous species be just as "pesty"?
3) Are pests simply species that inconvenience humans? Or are they species that somehow disturb the "natural" balance? (What weight should we place on economic vs environmental costs?)
4) Are humans the worst pest of all?
5) Can we extend the definition of weed to cover all pests (i.e. "something that should not be found where it is")?
6) We don't normally think of pests as microbiotic, but can HIV be regarded as some sort of pest? What about other diseases that have been imported?
7) It should be obvious to all that humans are not actually at the top of the food chain, but only a part of the food cycle. Do microbiotic pests pose a greater potential danger to us than any other sort of pest (or danger)? What if land clearing in West African rainforests (or Queensland woodland) unlocks a pathogen that is as contagious as influenza & as deadly as ebola?
8) What resources, realistically, should we be allocating to controlling past & future invasions?
9) What sorts of things should we be doing/avoiding in our daily lives to help control pest species?
10) What sorts of things could our school/local community do/avoid to help control pest species?

Question 2) This question could be answered from general knowledge, prompting or some basic research. (See Table 1 below.) One underpinning issue here is the relationship between the economy & the environment: In the case of invasive species, it is relatively easy to show how the interests of the economy & the environment actually coincide.

Additional teaching points

1) Biological systems are dynamic & can change very rapidly, especially given that single plants or animals can produce tens of thousands of seeds or eggs.
2) Change that takes place is often difficult to predict.
3) Many species are kept in check in their place of origin by natural checks & balances, but get out of control in places where they are introduced.
4) Weed invasion is especially facilitated by any kind of soil disturbance.

additional activities

1) Keep a class file about invasive species. This can be added to over time & can become an excellent resource.

2) Make a comprehensive list of invasive species in your area. Students can make their own lists (individually, in pairs or small groups) & then compare notes.

3) Organise a debate about exotic species, e.g. Should cats be locked up/kept indoors? Should we ban from suburban gardens invasive plants like agapanthus or pampas grass?

4) Work with park rangers in your area or an area that you will visit & incorporate weeding into your program.

5) Conduct field trips within or near school to identify the state of the natural environment (i.e. the degree to which introduced species have disturbed the original balance). Depending on the level of your confidence, you could run this trip or you could arrange a Science teacher, local conservationist or local ranger to run it.

wipeout answers

pulling up boneseed

Table 1: The 10 worst pests nationally

In an article titled “Invaders have got us covered,” (Melbourne *Herald Sun* 26/12/2003), experts tackled the task of determining our 10 worst pests.

ranking	*pest*	*arrival*	*origin*	*estimated damage*	*distribution*	*control*
equal first	carp	1859 (population explosion since 1961)	Europe	incalculable	all states	none
equal first	rabbits	1859	England	$600m+ pa	all states	various incl myxamomatosis, calicivirus, shooting, etc.
3	cane toad	1935		major environmental damage	Queensland, NT & northern NSW	none
4	red legged earth mite	early 1900s	South Africa	c$500m pa	all states	poison & pasture management
5	fox	1859	England	$250m+ pa	all states	poison & shooting
6	house mouse	arrived with First Fleet	England	c$50m pa in agriculture	all states	
7	sheep blowfly		South Africa	$250m+ pa	all states	drenching & clipping sheep
8	blackberry	early 1800s	England	c$50m pa in control costs, untold in terms of providing refuge to other pests	8.8m ha (mainly in cooler wetter areas)	poison & hand clearing
9	serrated tussock	1st detected 1930s	South America	c$42m pa	all states	improved pasture
10	Pacific sea star	mid 1990s	ballast water	Major threat to abalone & scallop industries, untold environmental damage	Port Phillip Bay, parts of Tasmania	none

These answers can also be found at www.wipeout.com.au/footprints/answers/

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(Above & below) Northern Pacific Seastars washed up at St Leonards beach, Port Phillip Bay, May 2006.

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