

**ILTER CROSS-SITE ACTIVITY:  
DOCUMENTATION OF THE PRESENCE AND ABUNDANCE OF NON  
INDIGENOUS SPECIES**

**What is this all about:** The first wave of European explorers/colonizers to regions represented by our LTER network intentionally or unintentionally introduced new species (here identified as "non-indigenous species or "non-native species"), and this wave of species introductions has continued to date.

**Why documentation of these species is important:** Non-indigenous species introductions have been identified as the second most common threat to native species presence and abundance. (Just after habitat destruction, and since habitat destruction is not usually an LTER focus, non-indigenous species may emerge as the most important threat to native diversity at our sites.) Biotic change is a component of global change. (and whether this change is 'cause' or 'effect' is often a research question). Some LTER sites remain pristine (i.e., few non-native species) but that may change in the future. Indeed, the transformation of species composition across the landscape, and particularly in those sites where these changes are accidental, is believed to be an important and relevant LTER cross-site activity for years to come. The mechanisms required to exclude these species are both fundamental research questions and management concerns. In short, invasive species is currently a hot ecological topic and likely to remain so into the future.

**What's needed:** The enclosed example from the Shortgrass Steppe is shown to indicate the first round of data collection. Even this simple analysis requires that each site a) have a species list and b) have the ability to identify native and non-native species on this list. The current working group is very plant-biased, but we hope to get a fauna (and, eventually, microbial) group going.

**So, where do we go from here:**

Please consider this a data request that a) your group has already filled (see below), b) you may be able to fill without assistance, or c) you need to take this to the attention of the person in charge of your diversity data set(s). (Again, the bias here is plants, but we're willing to act to put together a fauna working group if anybody contacts us about this.). Essentially, the minimum data requirement is

a) A species list. By habitat or community type is better than just a list. But, if all you have is a list, you can participate.

b) A designation to whether a species is "native" "non-native" or "native status unknown". Informed guesses are often used here and, in our mind, are acceptable. Someone in your group will be the cited authority for this designation.

c) If abundance or cover data are also available by species (better, by species and habitat), we would value this. We realize this data set will be harder to obtain, and may be restricted to only certain small areas of your LTER. That's ok. If you've got the metadata, we've got the time to work on this!

When you've completed this activity, you'll have a benchmark data set that can now form the basis for prior research efforts on your site. And, you'll have a contribution to an exercise that hopefully will be presented at the Coordination Committee Science Meeting in Sept., 2002. We need your help to make this a useful and interesting science exercise!

Current participating sites: NWT, SGS, KNZ, JRN, VCR.

Please send any comments, questions or data to:  
[timothy.seastedt@colorado.edu](mailto:timothy.seastedt@colorado.edu)

Possible interested LTER personnel for invasives:

KBS Kay Gross, Stuart Gage  
 NTL Tom Hrabik, Karen Wilson  
 HJA Julia Jones, Charles Halpern  
 HFR Kristina Stinson  
 HBF Tim Fahey  
 CWT Kitty Elliot

Note:

These folks have not been contacted since the first data request was made- so therefore they will be unaware of our plans- however these are the likely folks for the data managers to contact at their sites.

Ex.

Proposal for inter-site activity on invasive plant species.

The LTER network represents an important opportunity to collect data on exotic and invasive plant species over wide range of environments and associated ecosystem types. While there are a large number of potential activities we could engage in with respect to exotic/invasive plants, we are proposing a modest beginning with the expectation that additional activities will be added in the future. The objective of our proposal is to encourage an activity to compare floristic surveys of plants for each LTER site. Ideally these surveys will be conducted by landscape types. By floristic we mean that only an assessment of presence is required. If an individual of a particular species is present in a particular landscape unit, it is added to the species list for that unit. By landscape types we mean important units of the landscape diversity of the site that affects the composition of the plants that grow there such as uplands, riparian areas, etc. Corridors that may function as avenues for invasive plants move into the site should also be included. Table 1 provides an example of the results of such a survey for the SGS LTER site (Hazelett 1998)

	Open Steppe	Sandy Soils	Breaks/ Barrens	Cliffs/ Ravines	Riparian	Roadsides/ Disturbed soils	Total	(%)
<b>Native</b>								
annuals	22	12	0	4	23	20	81	20%
biennials	5	1	1	4	10	2	23	6%
perennials	80	19	28	50	112	13	299	74%
subtotal	107	32	29	58	145	35	<b>406</b>	
<b>Exotic</b>								
annuals	0	2	0	0	26	41	68	60%
biennials	0	0	0	0	5	9	14	12%
perennials	0	0	0	0	20	12	32	28%
subtotal	0	2	0	0	51	62	<b>115</b>	
<b>Total</b>	107	34	29	58	196	97	<b>521</b>	
(percentages)	21%	6%	6%	11%	38%	18%	100%	