

Conservation Corner

By Jim Nellessen

The Ecological Balance: Natives vs. Non-natives

Obviously our Society (NPSNM) is all about native plants and promoting an appreciation of them, but a small aspect of our interest in native plants necessarily involves non-natives, especially those that may be considered invasive (i.e. those that have a capacity in some way to encroach upon, perhaps even supplanting, some of our native plant species, thus altering the community composition, community structure, community dynamics).

It is not a matter of ugliness; many non-natives can be attractive, including salt cedar when in full bloom. Salt cedar has supposedly been able to take dominance in riparian settings because of channelization, changing a river's natural meander, and reduction or elimination natural flooding patterns. Sometimes I wonder if it would have spread to a certain extent anyway, even if say the Rio Grande or Pecos River were still 100% wild and not contained and channelized. Many of these non-natives are adapted to our climate and local environmental conditions due to similarity to their own native haunts. Yes the native plants here have adapted over millions of years, does this mean other species (i.e. non-natives) are not adapted? Non-native species have also adapted over millions of years, because of similar environmental conditions elsewhere in the world.

When you see a non-native like Canada thistle (*Cirsium canadense*) along a roadside – how do you properly manage for it? Especially when it often (at least in New Mexico) occurs in wetlands, habitats that one may be cautious about using herbicides. This is something I have struggled with over my professional years – yes I have recommended use of appropriately labeled herbicides to control it, but I always wonder is that best? Ideally I would prefer to see these things managed in a cultural manner without the addition of chemicals to the environment. Not that I am an organic fanatic or anything (I certainly am not, without the use of a reasonable level of pesticides in agriculture most of us would be starving for lack of food – at least until someone comes up with scientific ways to grow food (and I emphasize *on large scales*) without pesticide use). Maybe we should just let the Canada thistle be? (at least to a certain extent). Such non-natives are considered naturalized – i.e. fully blended into the plant communities in which they occur – Canada thistle was well known to me as a kid in Minnesota – just another part of the natural world (albeit a late comer in terms of geologic time to North America – and since Minnesota is so much moister than New Mexico, Canada thistle will grow anywhere in Minnesota). Sometimes I wish there were better ways to control large populations of highly invasive non-natives than just herbicides. One of the big factors is – *stop disturbing the environment on a regular basis!* Yes some of them are going to move in regardless, but continuous disturbance – such as mowing frequently along highways almost always exacerbates any weed situation. I would suggest once every 2 years would be enough to keep down woody brush that is not always desired too close to roads. But

then again, highways probably always will be primary plant communities for non-natives – it is easy to hitch a ride there.

Spraying thistles often bothers me, although we have several non-natives (musk thistle (*Carduus nutans*) and bull thistle (*Cirsium vulgare*) in addition to Canada thistle). Again, it has nothing to do with appearance, musk thistle and bull thistle look just as nice as any native thistle, it is just that *we know* they are non-native and historically have not belonged here – although our general unaware plant-naïve populous does not know. We have many nice native thistles: wavyleaf (*Cirsium undulatum*), yellow-spine (*Cirsium ochrocentrum*), New Mexico (*Cirsium neomexicanum*), etc., to name a few. I get concerned that spraying of non-natives will also harm natives especially when they often grow together and applicators may not really know the difference (or be properly trained). Even if the non-native is appropriately targeted – over-spray or residual herbicide may impact the natives.

Unfortunately, there are no easy answers. Livestock probably spread a variety of non-natives around, especially when they are allowed to over-graze (hence disturb) a natural environment. Maybe an army of laborers (like in the days of the CCC) could manually remove and control non-natives. But just like with the herbicide sprayers, they would also have to be properly trained to tell differences in species (or be closely supervised by knowledgeable plant people). Releasing non-native insects, fungi, bacteria, or other pathogens to control non-natives can also work, and also be scary – will the pest be able to move over to natives and control those as well? For example the exotic seedhead weevil (*Rhinocyllus conicus*) could move from musk thistle to the threatened Sacramento Mountain thistle (*Cirsium vinaceum*). It all seems like a conundrum in some ways to me. Can natives and non-natives survive together? Maybe, part of it depends on niche similarity (role, function, or place in the ecosystem). I believe much of our approach will depend on reasonable management, methods that keep the non-natives from becoming *too* dominant, or from physically displacing natives. Many non-natives are here to stay, and are fully naturalized. Extermination of non-natives in most cases will be infeasible, i.e. too costly, not just in terms of money, too costly in terms of ecological outcome; *over*-management might potentially cause our ecological systems to cross undesirable ecosystem thresholds we are not even aware of yet. I may sound like a hands-off person, but not so, we need to be involved, we will need some level of manipulation, since in most cases it was our own manipulation that started the problems. All I am trying to emphasize is not *over*-manipulate. These are just some ramblings of a scientist, botanist, plant ecologist, and just plain lover of plants!