

BEMP 2006 Vegetation Transect Summary Report

Phil Tonne
Natural Heritage New Mexico
University of New Mexico
Department of Biology
167 Castetter Hall
Albuquerque, New Mexico 87131
(505) 277-3822 ext 224
ptonne@unm.edu

Dena Odell & Steven Yanoff
263 White Oaks Canyon Road
White Oaks, NM 88301-9602
yanoff@tularosa.net
dena_o@yahoo.com

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Dear BEMP staff,

This report from the plant crew is divided into three sections:

Section 1 is a discussion of vegetation changes possibly related to the dry spring and wet summer. This should be an interesting year to examine diversity and cover relative to other years. This section discusses some of the changes that were observed in the field that might deserve more attention once the vegetation data has been entered.

Section 2 is a "New Taxa" table that lists the plant name, the acronym from the USDA Plants Database, and the site where the plant was recorded within vegetation transect.

Section 3 is a table detailing information about site location and maintenance issues that we observed upon our visits. Many sites had missing rebar and need some work. When rebar goes missing from sites where only the south boundary of the vegetation plot is marked it is much more difficult to find or reconstruct the transect. When a full veg. plot is delineated by 4 rebar it is relatively simple to reconstruct the south line from the 2 or three rebar remaining. For this reason we suggest that all sites be upgraded to mark the 4 corners of the full 5 meter by 30 meter vegetation plot with rebar. This is critical at Valencia cleared which currently is marked only on the south line with wooden stakes. This site is becoming overgrown and the wooden stakes are increasingly hard to find and aging.

Thank you again for the opportunity to be a part of the BEMP project. If there are any questions about the data or report, please do not hesitate to contact us at the email addresses or phone numbers listed above.

The Plant Crew,
Phil Tonne, Dena Odell, Steven Yanoff

Section 1. 2006 Field Observations.

After a very dry spring the Middle Rio Grande received a great deal of precipitation in July and August. The dry spring likely kept many of the annuals that typically germinate in late winter or early spring from germinating and developing as they would in most years. This was quite pronounced in some species. For instance *Melilotus officinalis* was very late developing this year; likely germinating, if at all, just as the rains began in mid-summer. Much of the emerging vegetative plants that we have been calling *Melilotus* resembled *Medicago sativa*. These species share many morphological similarities and the vegetative character states that allow one to distinguish them are limited to the leaflet margins. These differences did not appear to be reliable this year so we went back to check on the plants later in the fall.

While waiting for plants to mature in the Alameda bridge to Calabacillas area they were hit with an early freeze in late September preventing them from reaching maturity for clear identification. Our suspicion is that several species, primarily annuals, that would typically be present in great abundance, failed to get sufficient winter/spring moisture, and were replaced by those species that can take advantage of monsoon precipitation. *Salsola tragus* and *Kochia scoparia* are two other annuals that may have decreased in cover in certain areas due to a lack of moisture at the start of the year. Cooler than usual July and August days may have also played a role in the bosque dynamics this year; certain taxa won't germinate or develop as readily under cloud cover with frequent rain.

In late summer many seedlings were coming up throughout the bosque. While we were able to identify some of them, others had to be treated as unidentified forbs (UF) Dicots (UD), Monocots (UM), grasses (UG), etc.

Some sites flourished with the summer rains, while others didn't appear to benefit. Some sites showed different responses to the increased summer precipitation. Some sites had increased cover but decreased diversity (Harrison may fit this example) while other sites had increased diversity with or without an increase in cover. For example, portions of the Montano/ Savannah Bosque appear to have had an increase in cover and diversity. Hopefully this is captured within the vegetation transects, but some taxa that were present in unusual abundance in the bosque might not have been reflected in the vegetation data. For instance, the annuals *Datura quercifolia* (introduced, photo 1), *Hibiscus trionum* (introduced, photo 2), *Solanum rostratum* (native, photo 4), *Tribulus terrestris* (introduced), and *Kallstroemia parviflora* (native, photo 5), were in great abundance in this portion of the bosque. *Proboscidea parviflora* (native annual, photo 3) was present, though less abundant than the taxa listed above; this species may only be represented in the bosque flora in extremely wet years.

Perennials also showed an increase in biomass and/or abundance; *Salix exigua* greatly increased its cover within the Harrison site, *Epipactis helleborine*, was abundant at Calabacillas, and *Amorpha fruticosa* produced hundreds of seedlings at Badger. In other areas, e.g. the Rio Grande Nature Center Site, perennial grasses seemed strangely stunted and slow to respond to the rains. Some grasses appeared to be drought stressed even after two months of abundant monsoon moisture.

Ohkay Owingeh was interesting this year. While it likely received just as much rainfall as other sites it may not have been irrigated as heavily as other years. Diversity and cover shifts at this site have been fairly dramatic and unpredictable.



Photo 1. *Datura quercifolia* – Chinese thorn-apple. Savannah



Photo 2. *Hibiscus trionum* – Flower of an hour. Savannah



Photo 3. *Proboscidea parviflora* – Devil's Claw. Montano



Photo 4. *Solanum rostratum* – Buffalobur nightshade. Montano



Photo 5. *Kallstroemia parviflora* (warty caltrop) covers much of the vegetation near Montano, line H.



Photo 6. Wasp visiting *Epipactis helleborine* (Broadleaf helleborine) at Calabacillas.

No.	Scientific Name	Common name	PD_Acro	Location	Notes
1	<i>Abronia villosa</i>	desert sand verbena	ABVI	Lemitar	
2	<i>Bromus carinatus</i>	California brome	BRCA5	Ohkay Owingeh	<i>Bromus Carinatus</i> BRCA5. Not listed for New Mexico by plants database. Recognized by the Agrostologist at New Mexico State, Kelly Allred.
3	<i>Bromus catharticus</i> Vahl	rescuegrass	BRCA6	HCC	
4	<i>Cenchrus spinifex</i> Cav.	Coastal sandbur	CESP4	Harrison	The plants database now places <i>Cenchrus incertus</i> into <i>Cenchrus spinifex</i> . All CEIN entries in the BEMP database should be changed to CESP4. This change is reflected in a recent treatment of NM grasses by Kelly Allred.
5	<i>Chamaesyce geyeri</i> (Engelm. & Gray) Small	Geyer's sandmat	CHGE2	Calabacillas	
6	<i>Cyperus esculentus</i> L.	yellow nutsedge	CYES	Harrison	
7	<i>Dalea uried</i> (Ait.) Bullock	foxtail prairie clover	DALE3	Harrison	
8	<i>Datura wrightii</i> Regel	sacred thorn-apple	DAWR2	Multiple	This is the correct species that has been at the B.E.M.P. sites for years under the erroneous acronym of DAME2. <i>Datura meteloides</i> is listed prominently in the Flora of New Mexico key and this name has been misapplied to <i>Datura wrightii</i> specimens in the state. The names <i>D. metaloides</i> and <i>D. inoxia</i> are commonly misapplied to our native <i>D. wrightii</i> .
9	<i>Epilobium ciliatum</i> Raf.	Fringed willowherb	EPCI	Ohkay Owingeh	
10	<i>Epipactis helleborine</i> (L.) Crantz	broadleaf helleborine	EPHE	Calabacillas	
11	<i>Grindelia squarrosa</i> (Pursh) Dunal	curlycup gumweed	GRSQ	Harrison	
12	<i>Kallstroemia parviflora</i> J.B.S. Norton	warty caltrop	KAPA	Montano	
13	<i>Kochia scoparia</i>	Burningbush	KOSC to BASC5		Someone decided to change <i>Kochia</i> to <i>Bassia</i> , so there will be a new acronym for this taxon. We recorded it as KOSC.
14	<i>Lemna</i> L.	duckweed	LEMNA	Ohkay Owingeh	<i>Lemna</i> sp.

No.	Scientific Name	Common name	PD_Acro	Location	Notes
15	Marsilea L.	waterclover	MARSI	Ohkay Owingeh	Has been recorded previous years. May have been recorded as waterclover
16	Oenothera elata Kunth ssp. hirsutissima (Gray ex S. Wats.) W. Dietr.	Hooker's evening-primrose	OELH	Harrison	
17	Pectis angustifolia Torr.	Lemonscent	PEAN	Calabacillas	
18	Physalis L.	groundcherry	PHYSA	Montano	May not be new but not listed in 2005.
19	Portulaca oleracea L.	little hogweed	POOL	Multiple	
20	Proboscidea parviflora (Woot.) Woot. & Standl.	Devil's claw	PRPA2	Montano	
21	Saccharum ravennae (L.) L.	ravennagrass	SARA3	Minnow	This is the large Pampas-grass-like plant.
22	Schismus arabicus Nees	Arabian schismus	SCAR	Hispanic Cultural Center	new
23	Schoenoplectus pungens (Vahl) Palla	common threesquare	SCPU10	Ohkay Owingeh	
24	Setaria viridis (L.) Beauv.	Green bristlegrass	SEVI4	Reynolds Cleared	Likely at other sites this year
25	Sisymbrium irio L.	London rocket	SIIR	Calabacillas	
26	Solanum nigrum	Black nightshade	SONI	Montano	SONI The plants database does not list it for the state but recognizes several subspecific taxa under Solanum americanum as synonyms. Kelly Allred of New Mexico State recognizes S. nigrum and places S. americanum in synonymy.
27	Sorghastrum nutans (L.) Nash	Indiangrass	SONU2	Harrison	
28	Sphaeralcea coccinea (Nutt.) Rydb.	Scarlet globemallow	SPCO	Harrison	
29	Thinopyrum intermedium (Host) Barkworth & D.R. Dewey	intermediate wheatgrass	THIN6	Off Transect Savannah	
30	Tribulus terrestris L.	puncturevine	TRTE	Multiple	Near or on lines various sites.
31	Verbascum uried L.	common mullein	VETH	Montano	
32	Verbena bracteata Cav. Ex Lag. & Rodr.	Bigbract verbena	VEBR	Minnow	

Site	Transect	Observation	Justification
Alameda	C	Someone placed a new CSW veg. rebar; presumably because they couldn't find the original.	We removed it because it is confusing. C litter tub is way south of the line.
Badger	All	Only has south line. Recommend putting a north line.	Harder to lose all 4 than 1 or 2. Easier to locate transects at any site with 4 rebar present.
Badger	F	Moved FSW 11 meters east because it was 41 meters long.	
Calabacillas	All	North rebar is lacking	
Calabacillas	G	SW rebar missing.	
Calabacillas	H	SW rebar missing.	
Calabacillas	Many	Both <i>Melilotus officinalis</i> and <i>Medicago sativa</i> present. In their vegetative state they are not reliably distinguishable. They are both stunted in development this year due to a lack of spring moisture.	
Diversion	All	Only has south line. Recommend putting a north line.	Harder to lose all 4 than 1 or 2. Easier to locate transects at any site with 4 rebar present.
Diversion	F	SE rebar missing. Kim S. confirmed that she fixed this.	
Harrison	A	NE rebar missing.	
Harrison	E	East end missing. Restaked based on GPS reading and 30 meters E. of SW rebar.	
Harrison	F	NE rebar missing.	
Harrison	I	NE rebar missing.	
Harrison	J	NE missing, SE is wood, NW may be missing.	
Hispanic Cultural Center	A	Need 2 north rebar.	
Hispanic Cultural Center	B	NW rebar missing.	
Hispanic Cultural Center	C	NW rebar missing; NE is a stump; SE mostly uried but o.k.	
Hispanic Cultural Center	D	NW and NE rebar missing.	

Site	Transect	Observation	Justification
Hispanic Cultural Center	E	SW reset; NE & NW gone.	
Hispanic Cultural Center	F	Need 2 north rebar.	
Hispanic Cultural Center	G	My notes say 2 east present. I don't know if that means that the 2 west are missing.	
Hispanic Cultural Center	H	Need 2 north rebar.	
Hispanic Cultural Center	I	Need 2 north rebar.	
Hispanic Cultural Center	J	Need 2 north rebar. There is a blue rebar way to the East of where the line used to be. Appears to be a blue plot marker. We read the traditional transect.	
Many Sites	Many	Both <i>Melilotus officinalis</i> and <i>Medicago sativa</i> present. In their vegetative state they are not reliably distinguishable. They are both stunted in development this year due to a lack of spring moisture.	
Montano	D	SE rebar missing. Kim S. just replaced it when we were there but mowers completely removed it the next day and I could not relocate it. The mowers avoided all of the tall stakes that we placed out there.	When rebar were missing in the past we took some of the stakes from pole plantings that had died. We painted these tall wooden stakes blue. Recommend rebar driven low with tall wooden stakes beside them so that the mowers can avoid our plots.
Rio Grande Nature Center	Many	Both <i>Melilotus officinalis</i> and <i>Medicago sativa</i> present. In their vegetative state they are not reliably distinguishable. They are both stunted in development this year due to a lack of spring moisture.	
Savannah	A-H	Replaced SE/SW with rebar.	
Savannah	All	Only has south line. Recommend putting a north line.	Harder to lose all 4 than 1 or 2. Easier to locate transects at any site with 4 rebar present.

Site	Transect	Observation	Justification
Savannah	I	Needs SW – ends in large <i>Sporobolus airoides</i> – <i>Alkalai sacaton</i> .	
Valencia Cleared	All	Needs 4 rebar per vegetation plot. Vegetative cover is quickly covering portions of this site and it may become impossible to relocate the wooden stakes on some transects.	The two wooden stakes that mark the southern edge of the vegetation plot are aging and increasingly difficult to find.



Coachwhip (*Masticophis flagellum*) at Rio Grande Nature Center.