



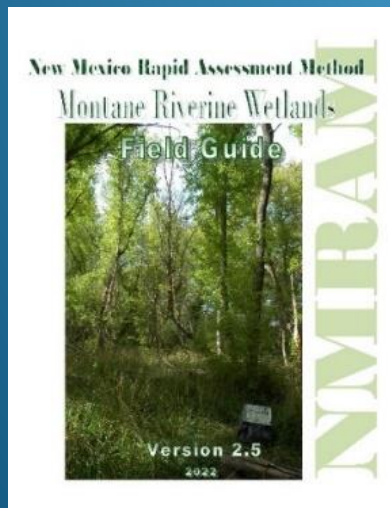
New Mexico Environment Department



New Mexico Rapid Assessment Method (NMRAM)

Riverine Wetlands

Biotic Metrics Intro - Montane Field Recon and Mapping



New Mexico Environment Department
Surface Water Quality Bureau
Wetlands Program

Natural Heritage New Mexico
University of New Mexico



Biotic Metrics

1. Relative Native Plant Community Composition
2. Vegetation Horizontal Patch Structure
3. Vegetation Vertical Structure
4. Native Riparian Tree Regeneration
5. Invasive Exotic Plant Species Cover



Field Reconnaissance and Mapping

- Field Reconnaissance
 - Map Vegetation Patches
 - Minimum map unit – 0.1 ha, or an area of 50 m by 20 m
 - Record patch relevant data for Biotic metrics
 - Confirm Landscape assessment
 - Mapping for Biotic metrics
 - Map Vegetation Community Patches
 - Used for all Biotic metrics
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- An aerial photograph of a landscape, possibly a wetland or coastal area, with various shades of brown, green, and blue. A prominent purple rectangular patch is overlaid on the right side of the image, indicating a specific area of interest for mapping or assessment.

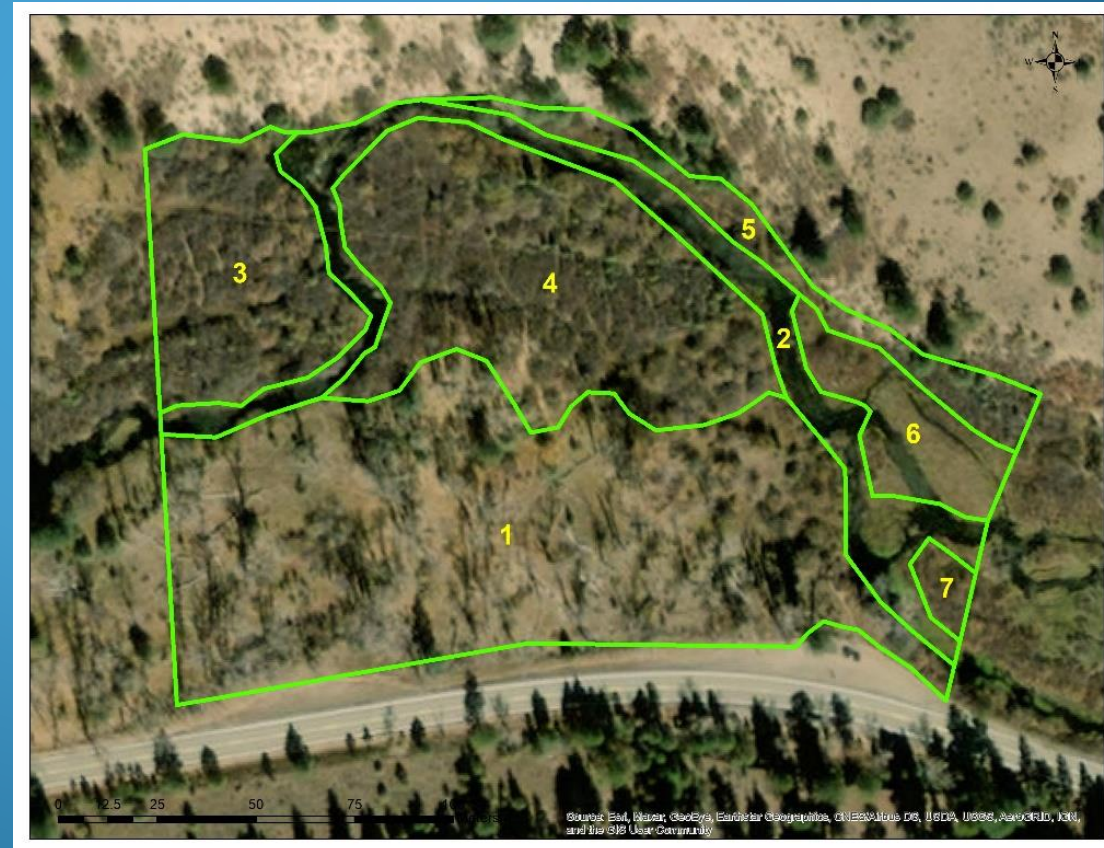


Vegetation Patch Map for Biotic Metrics



Vegetation Patch Map for Biotic Metrics

- Map each plant community type (CT) in the SA
- Calculate the area of each CT
- Select top two dominant species per strata:
 - Tall Woody > 6m (20 ft)
 - Short Woody < 6m (20 ft)
 - Herbaceous



Biotic Metrics – tracking vegetation patch data – polygon 1

Biotic Metrics

Worksheet 5. Vegetation Community Patch Polygon Data for Biotic Metrics B3, B4, and B5 for Polygons from SA Biotic Map. Enter data for each polygon under a unique number assigned from the SA Biotic Map. Each polygon is evaluated with respect to Vegetation Vertical Structure (B3), Native Tree Regeneration (B4), and Invasive Exotic Plant Species Cover (B5) metrics. Enter the Vertical Structure Type (VST) for B3, tree regeneration % cover within the polygon for B4 and the % cover of invasive exotic species for B5. Use the Tables in Appendix B and the Field Guide for metric instructions. Enter the species codes for the invasive exotic species found in the polygon (from NM Noxious Weed List - Appendix D). Use the comments box for documenting and describing vegetation community patch features.

Polygon No	B3 Vertical Structure Type	B4 Tree Regeneration % Cover	B5 Invasive Exotic Species % Cover	Invasive Exotic Species (List Code(s))	Comments
1	VST 2	1	0		Higher terrace with mature Cottonwood and dense smooth brome understory
2					
3					
4					
5					
6					
7					
8					
9					
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11					
12					
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14					
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16					
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18					
19					
20					

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Biotic Metrics – tracking vegetation patch data – CT A

B1 - Relative Native Plant Community Composition

Worksheet 6. CT Plant Species and Polygon Assignments. Starting with CT A, enter the number of the first polygon from Worksheet 5. Enter the species codes for the two top dominant species in each stratum that appears in the polygon. See footnotes for special instructions. If a species appears in more than one strata, assign the species to the stratum in which it is more abundant. Each polygon is either assigned to the same CT if it has the same composition or a new CT is created for the polygon.

		Tall Woody Stratum 1						Short Woody Stratum 2						Herbaceous/Sparse Stratum 3						CT Score 4				
CT	Polygon Nos.						Species 1		Species 2		Species 3		Species 4		Species 5		Species 6		Raw4	% SA5	Wt Score6			
A	1						POAN3		N							BRIN2		E	POPR		E	3.5	0.45	1.575
B																								
C																								
D																								
E																								
F																								
G																								
H																								
I																								
J																								
K																								
L																								
M																								
N																								
O																								

An aerial photograph showing a landscape with sparse vegetation and a prominent red boundary line. A yellow polygon, labeled with the number '3' in yellow, is overlaid on the image, indicating a specific area of interest. The polygon is irregular in shape, following the contours of the terrain. The red line runs along the bottom edge of the polygon, possibly representing a road or a specific management boundary. The surrounding area is a mix of brownish-yellow ground and green patches of vegetation.

1. Trees and shrubs > 6 m (20 feet) and > 25% total stratum cover; 2. Trees and shrubs ≤ 6m (20 feet) and > 25% total stratum cover. ⁴Raw Score is from Table B1a (Appendix B); ⁵%SA is the percentage of the SA area covered by the CT; ⁶Wt. Score is the product of the Raw Score * % SA; ⁷The Final Weighted Score is the sum of the Wt. Scores. R₂ for Relative Native Plant Community Composition on the SA Rank Summary Worksheet.

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Biotic Metrics – tracking vegetation patch data – polygon 2

Biotic Metrics

Worksheet 5. Vegetation Community Patch Polygon Data for Biotic Metrics B3, B4, and B5 for Polygons from SA Biotic Map. Enter data for each polygon under a unique number assigned from the SA Biotic Map. Each polygon is evaluated with respect to Vegetation Vertical Structure (B3), Native Tree Regeneration (B4), and Invasive Exotic Plant Species Cover (B5) metrics. Enter the Vertical Structure Type (VST) for B3, tree regeneration % cover within the polygon for B4 and the % cover of invasive exotic species for B5. Use the Tables in Appendix B and the Field Guide for metric instructions. Enter the species codes for the invasive exotic species found in the polygon (from NM Noxious Weed List - Appendix D). Use the comments box for documenting and describing vegetation community patch features.

Polygon No	B3 Vertical Structure Type	B4 Tree Regeneration % Cover	B5 Invasive Exotic Species % Cover	Invasive Exotic Species (List Code(s))	Comments
1	VST 2	1	0		Higher terrace with mature Cottonwood and dense smooth brome understory
2	VST 6W	0	0.5	CIAR4, CIVU	Channel with dense RAAQ and unknown aquatic (F3) banks, mostly herbaceous.
3					
4					
5					
6					
7					
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12					
13					
14					
15					
16					
17					
18					
19					
20					



Biotic Metrics – tracking vegetation patch data – CT B

B1 - Relative Native Plant Community Composition

Worksheet 6. CT Plant Species and Polygon Assignments. Starting with CT A, enter the number of the first polygon from Worksheet 5. Enter the species codes for the two top dominant species in each stratum that appears in the polygon. See footnotes for special instructions. If a species appears in more than one strata, assign the species to the stratum in which it is more abundant. Each polygon is either assigned to the same CT if it has the same composition or a new CT is created for the polygon.

CT	Polygon Nos.	Tall Woody Stratum 1				Short Woody Stratum 2				Herbaceous/Sparse Stratum 3				CT Score 4		
		Species 1	E N	Species 2	E N	Species 3	E N	Species 4	E N	Species 5	E N	Species 6	E N	Raw ⁴	% SA ⁵	Wt Score ⁶
A	1	POAN3	N							BRIN2	E	POPR	E	3.5	0.4	1.4
B	2									RAAQ	N	FORB2	U	2	0.1	0.2
C																
D																
E																
F																
G																
H																
I																
J																
K																
L																
M																
N																
O																

1. Trees and shrubs > 6 m (20 feet) and > 25% total stratum cover; 2. Trees and shrubs ≤ 6m (20 feet) and > 25% to stratum cover. ⁴Raw Score is from Table B1a (Appendix B); ⁵%SA is the percentage of the SA area covered by the equal 1; ⁶Wt. Score is the product of the Raw Score * % SA; ⁷The Final Weighted Score is the sum of the Wt. Score for Relative Native Plant Community Composition on the SA Rank Summary Worksheet.

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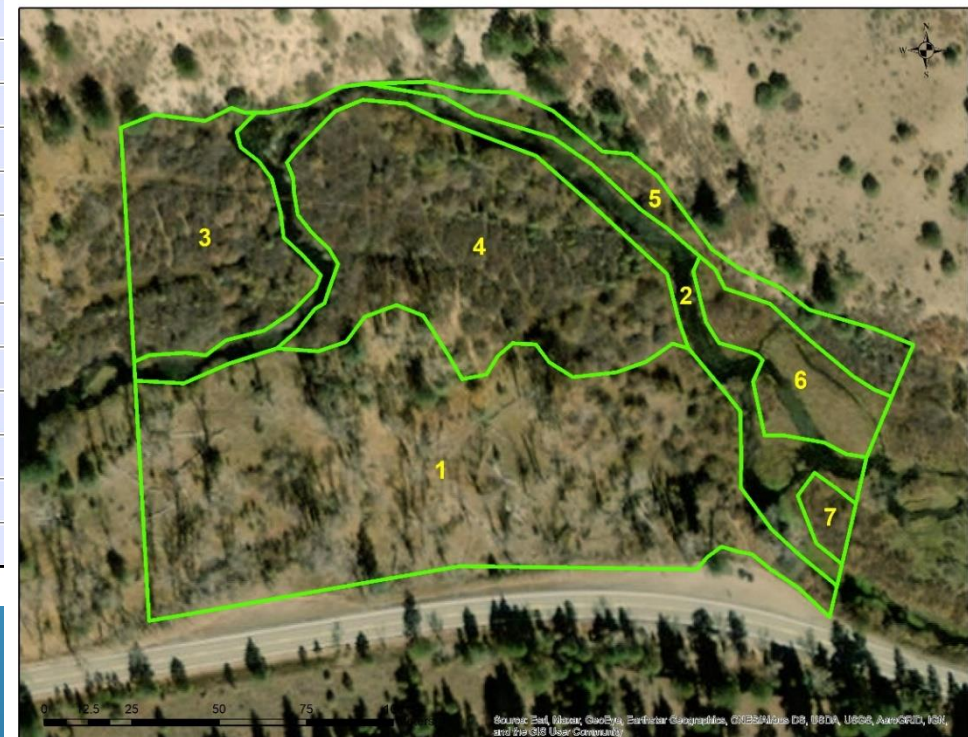
Biotic Metrics – tracking vegetation patch data – finished SA

Biotic Metrics

Worksheet 5. Vegetation Community Patch Polygon Data for Biotic Metrics B3, B4, and B5 for Polygons from SA Biotic Map. Enter data for each polygon under a unique number assigned from the SA Biotic Map. Each polygon is evaluated with respect to Vegetation Vertical Structure (B3), Native Tree Regeneration (B4), and Invasive Exotic Plant Species Cover (B5) metrics. Enter the Vertical Structure Type (VST) for B3, tree regeneration % cover within the polygon for B4 and the % cover of invasive exotic species for B5. Use the Tables in Appendix B and the Field Guide for metric instructions. Enter the species codes for the invasive exotic species found in the polygon (from NM Noxious Weed List - Appendix D). Use the comments box for documenting and describing vegetation community patch features.

Polygon No	B3 Vertical Structure Type	B4 Tree Regeneration % Cover	B5 Invasive Exotic Species % Cover	Invasive Exotic Species (List Code(s))	Comments
1	VST 2	1	0		Higher terrace with mature Cottonwood and dense smooth brome understory
2	VST 6W	0	0.5	CIAR4, CIVU	Channel with dense RAAQ and unknown aquatic (F3) banks, mostly herbaceous.
3	VST 5	0	0.5	CIVU, CIAR4	Dense mixed shrub (3-4m tall) willow - SAEX and SALI, and dense mixed Carex sp. understory.
4	VST 5	0	0.5	CIVU, CIAR4	Dense mixed willow shrub (3-4 m tall) with Carex sp. understory, very like polygon 3
5	VST 5	0	1	CIVU, CIAR4	Dense mixed willow shrub (3-4 m tall) with Carex sp., on outer edge of wetland adj to upland
6	VST 6S	0	7	CIAR4, CIVU	Multi-channel, islands in channel with dense herbaceous and patches of young short willows thro
7	VST 5	0	0.5	CIVU, CIAR4	Dense mixed willow shrub (3-4 m tall) with Carex sp. understory, very like polygon 3
8					
9					
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18					
19					
20					

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Biotic Metrics – tracking vegetation patch data – Finished SA

B1 - Relative Native Plant Community Composition

Worksheet 6. CT Plant Species and Polygon Assignments. Starting with CT A, enter the number of the first polygon from Worksheet 5. Enter the species codes for the two top dominant species in each stratum that appears in the polygon. See footnotes for special instructions. If a species appears in more than one strata, assign the species to the stratum in which it is more abundant. Each polygon is either assigned to the same CT if it has the same composition or a new CT is created for the polygon.

								Tall Woody Stratum 1				Short Woody Stratum 2				Herbaceous/Sparse Stratum 3				CT Score 4									
CT	Polygon Nos.							Species 1	E	N	Species 2	E	N	Species 3	E	N	Species 4	E	N	Species 5	E	N	Species 6	E	N	Raw ⁴	% SA ⁵	Wt Score ⁶	
A	1							POAN3		N										BRIN2		E		POPR		E	3.5	0.45	1.575
B	2																			RAAQ		N		FORB2		U	2	0.1	0.2
C	3	4	5	7									SAEX		N		SALI		N	CAUT		N		AGGI2		E	3.5	0.4	1.4
D	6												SALUL		N		SAEX		N	JUARL		N		AGGI2		E	3.5	0.05	0.175
E																													
F																													
G																													
H																													
I																													
J																													
K																													
L																													
M																													
N																													
O																													

An aerial photograph showing a landscape with a river and a purple-shaded area labeled '3'. The river is a dark blue line winding through the landscape. The purple-shaded area is a large, irregular shape, likely representing a specific land use or management zone. The number '3' is written in yellow in the center of the purple area.

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1. Trees and shrubs > 6 m (20 feet) and > 25% total stratum cover; 2. Trees and shrubs ≤ 6m (20 feet) and > 25% total stratum cover; 3. stratum cover. ⁴Raw Score is from Table B1a (Appendix B); ⁵%SA is the percentage of the SA area covered by the CT and expressed as equal 1; ⁶Wt. Score is the product of the Raw Score * % SA; ⁷The Final Weighted Score is the sum of the Wt. Scores. Rate the CT Final Wt for Relative Native Plant Community Composition on the SA Rank Summary Worksheet.

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