Conceptos generales sobre Sitios Ecológicos y Modelos de Estados y Transiciones

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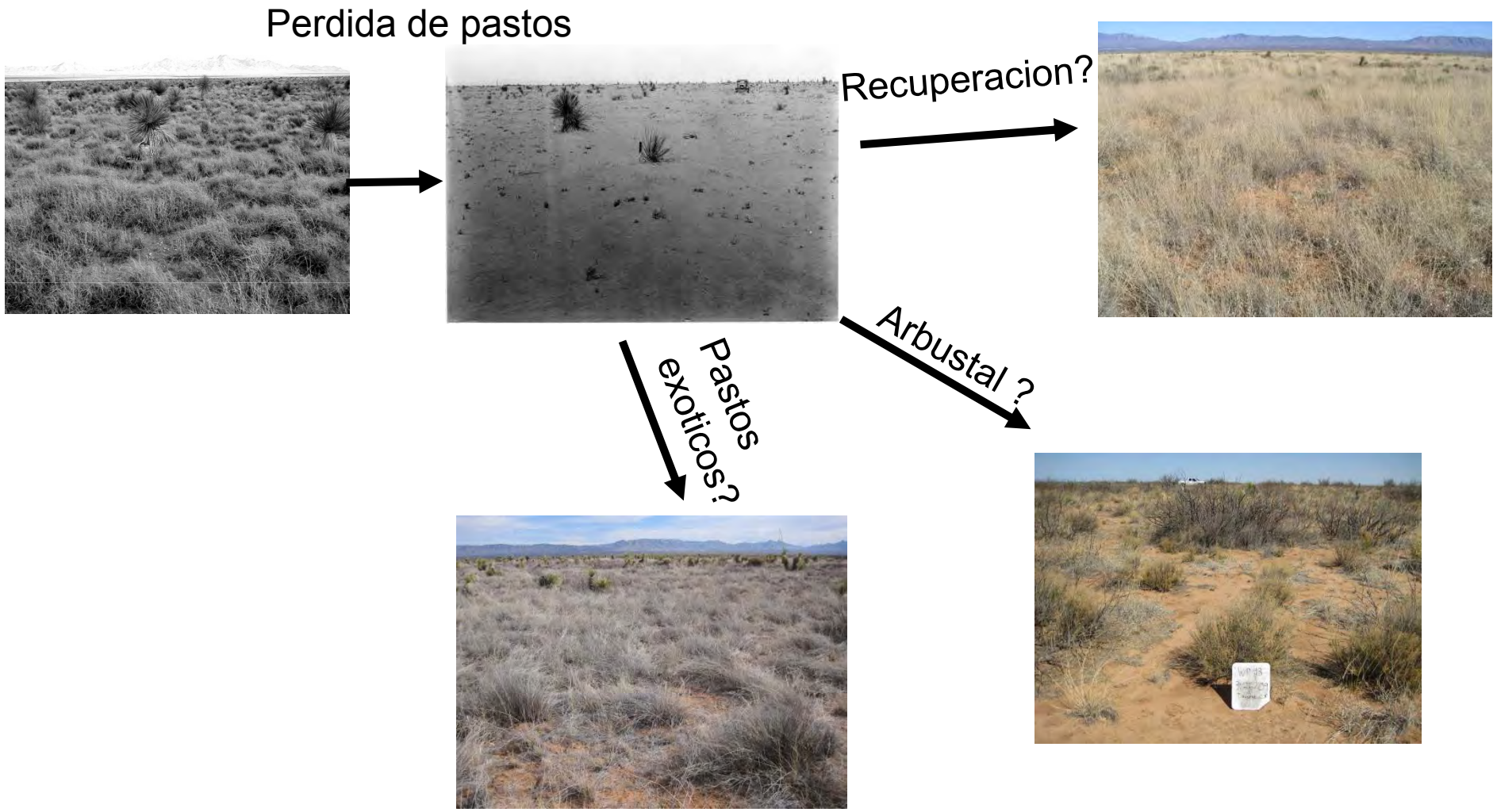
Como responderán ecosistemas al manejo y fuerzas naturales a través del paisaje?



3 clases de factores que controla las respuestas

1. ***Sitios ecologicos y el contexto del paisaje***

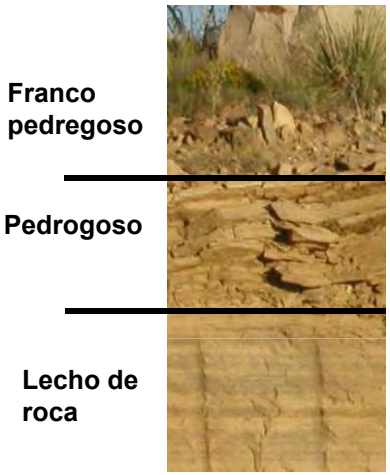
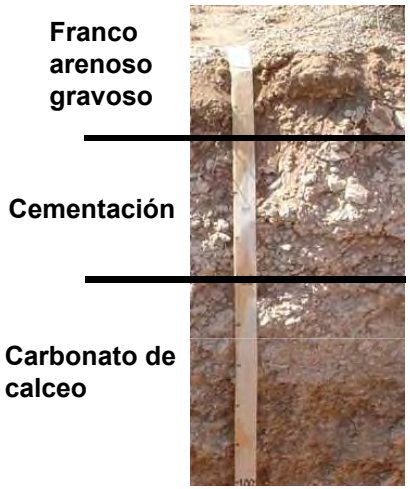
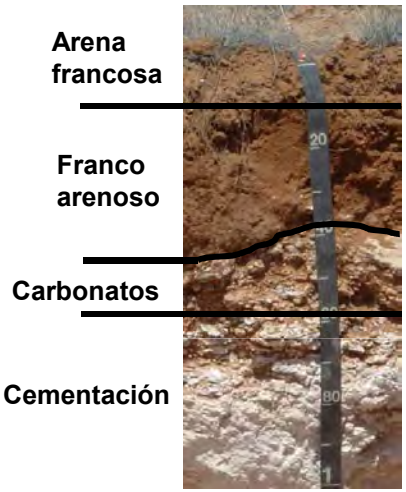
2. ***Drivers (factores de control)***

    <u>Slow processes (procesos lentos)</u>

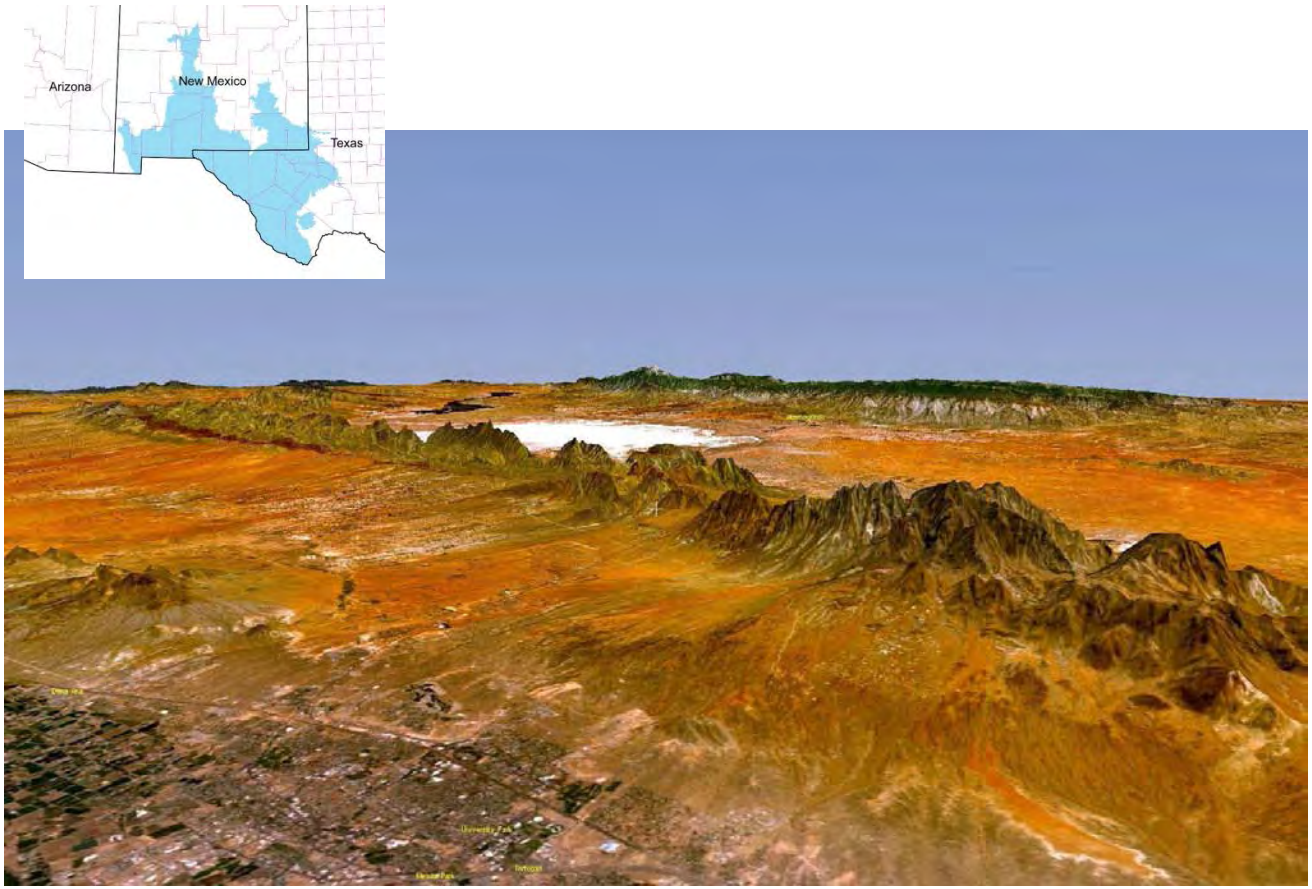
    <u>Triggers (disparadores = eventos discretos)</u>

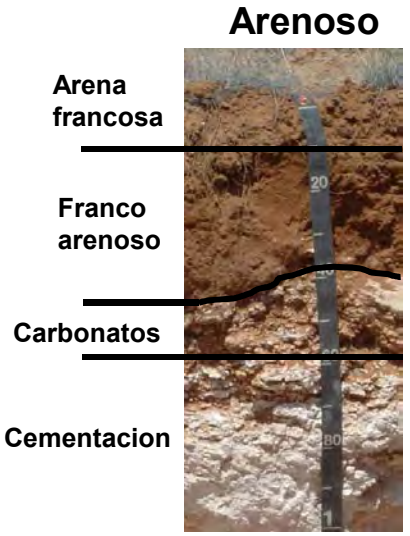
3. ***Mechanisms (mecanismos de cambio)***

Sitios ecológicos con distintos perfiles de suelo

	Colinas	Gravoso	Arenoso
Horizontes de suelo			
Distinciones importantes	**Alto almacenamiento de agua en “bolsas”**	**Bajo almacenamiento de agua**	**Alto almacenamiento de agua, alto riesgo de erosión eólica**

Sitio ecológico arenoso, zona de 200-250 mm, temperatura de suelo térmica (15° C to 22° C)



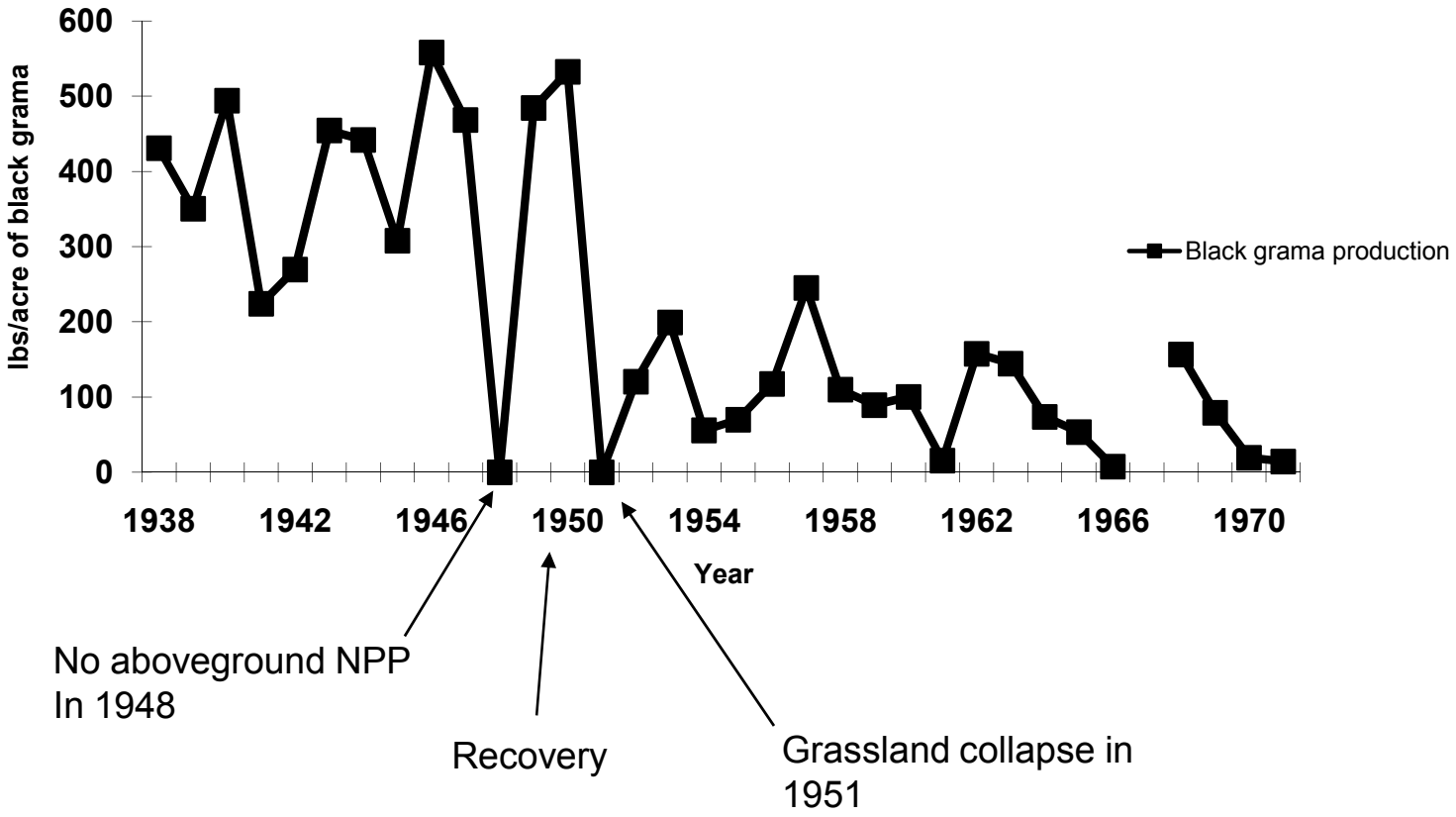


Alto riesgo de erosión eólico

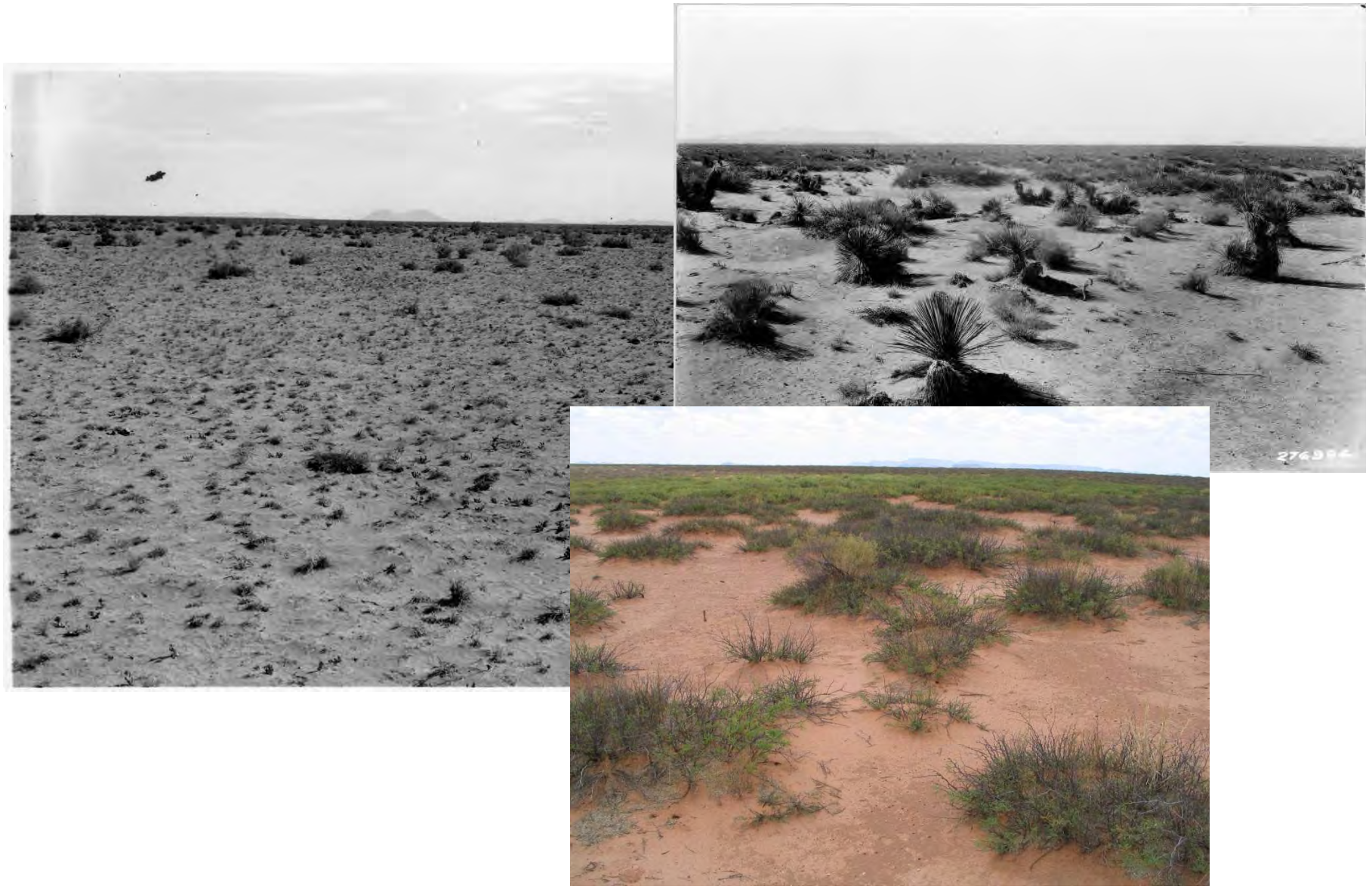
Condiciones de referencia por el sitio Arenoso

Procesos ecologicos: **alto estabilidad de suelo, bajo tasa de erosion eolica, alto reproduccion de pastos (por stolon).**

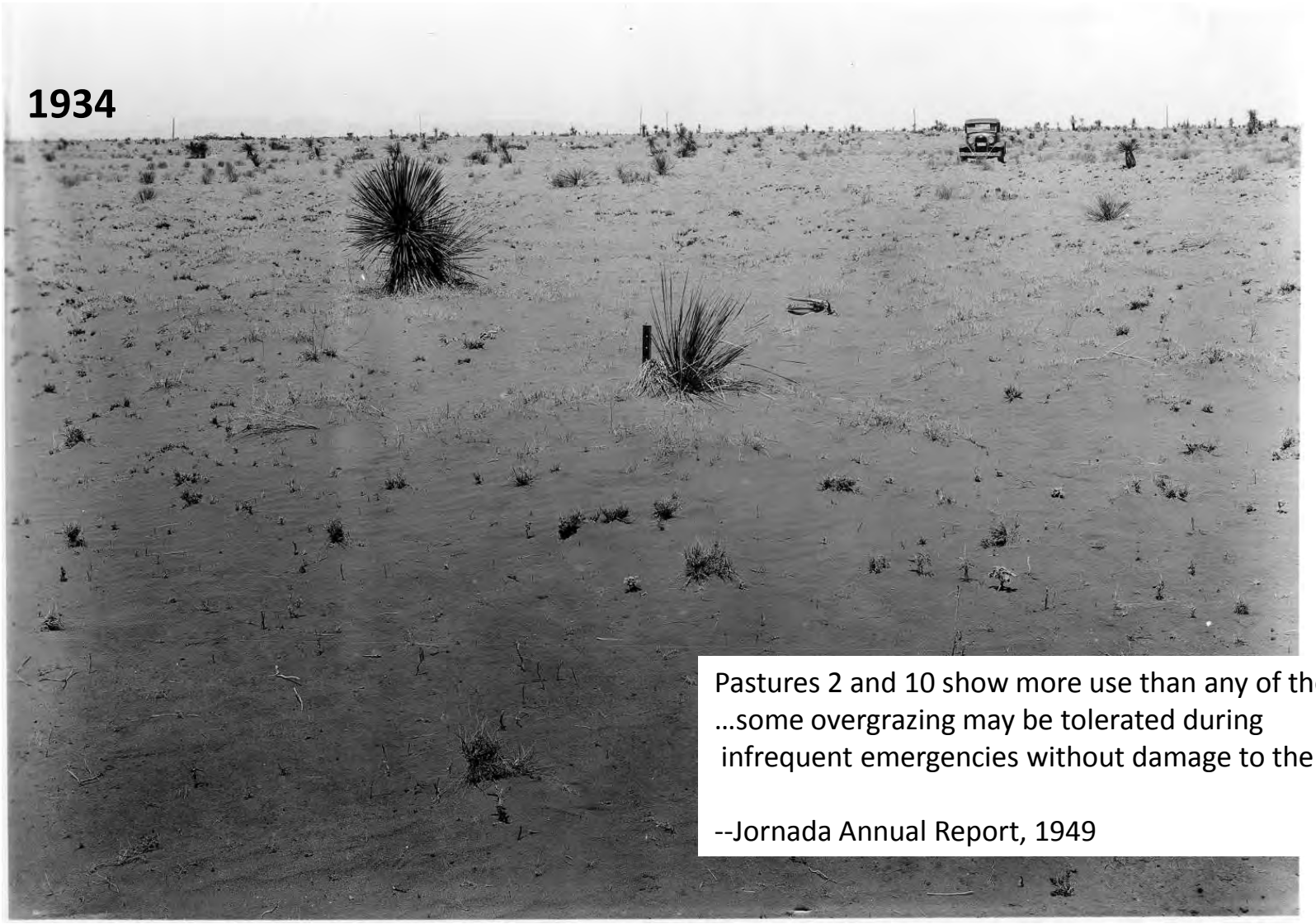
El transición



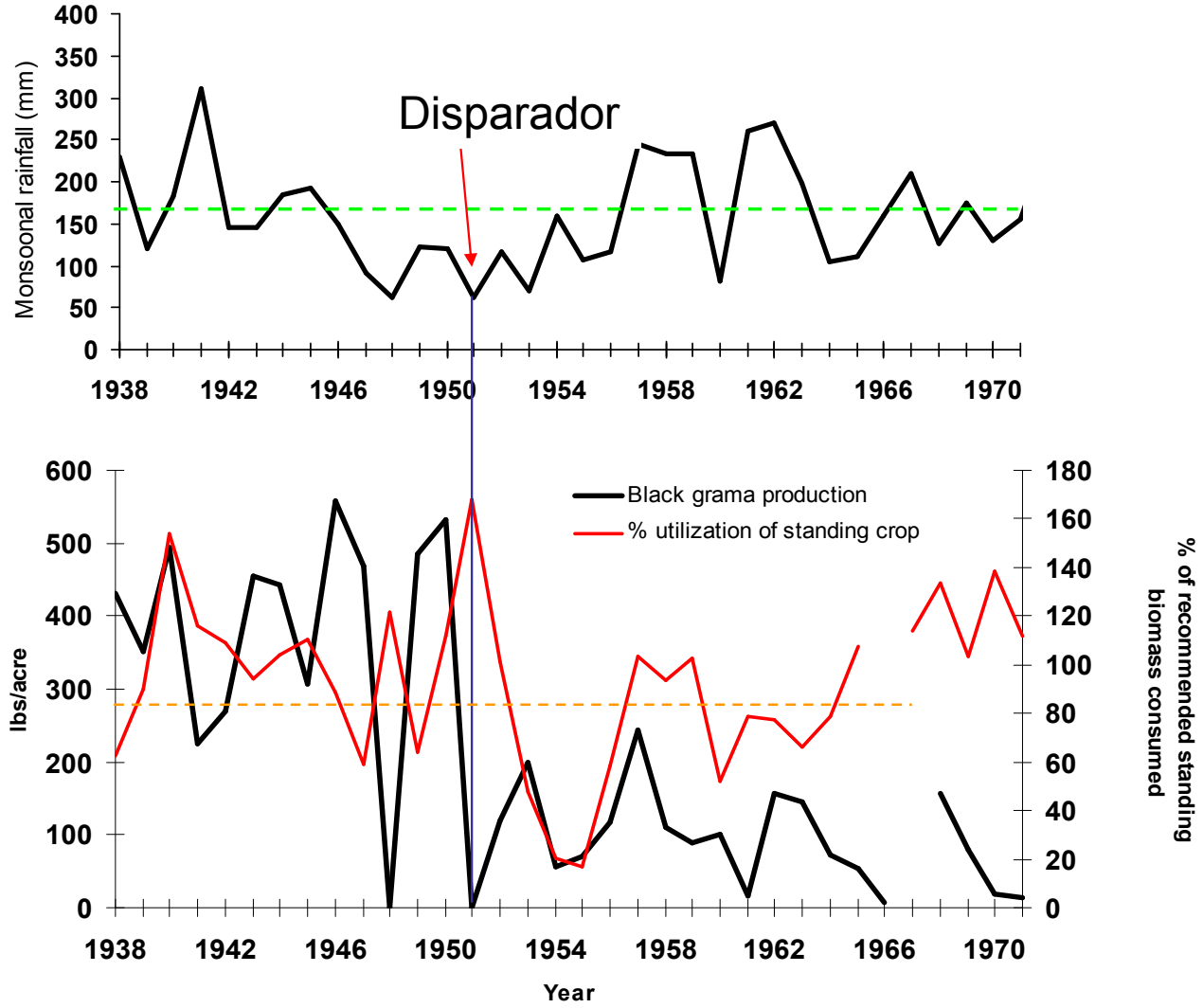
***Transicion*: Perdida de *Bouteloua eriopoda*; colapso en 1951. Arbustos sobreviven y prosperan**



***Procesos ecologicos alterados*: Alto tasa de erosion eolica y escurrimiento de agua mortalidad de pastos restantes, establecimiento reducido de plantas nuevas**



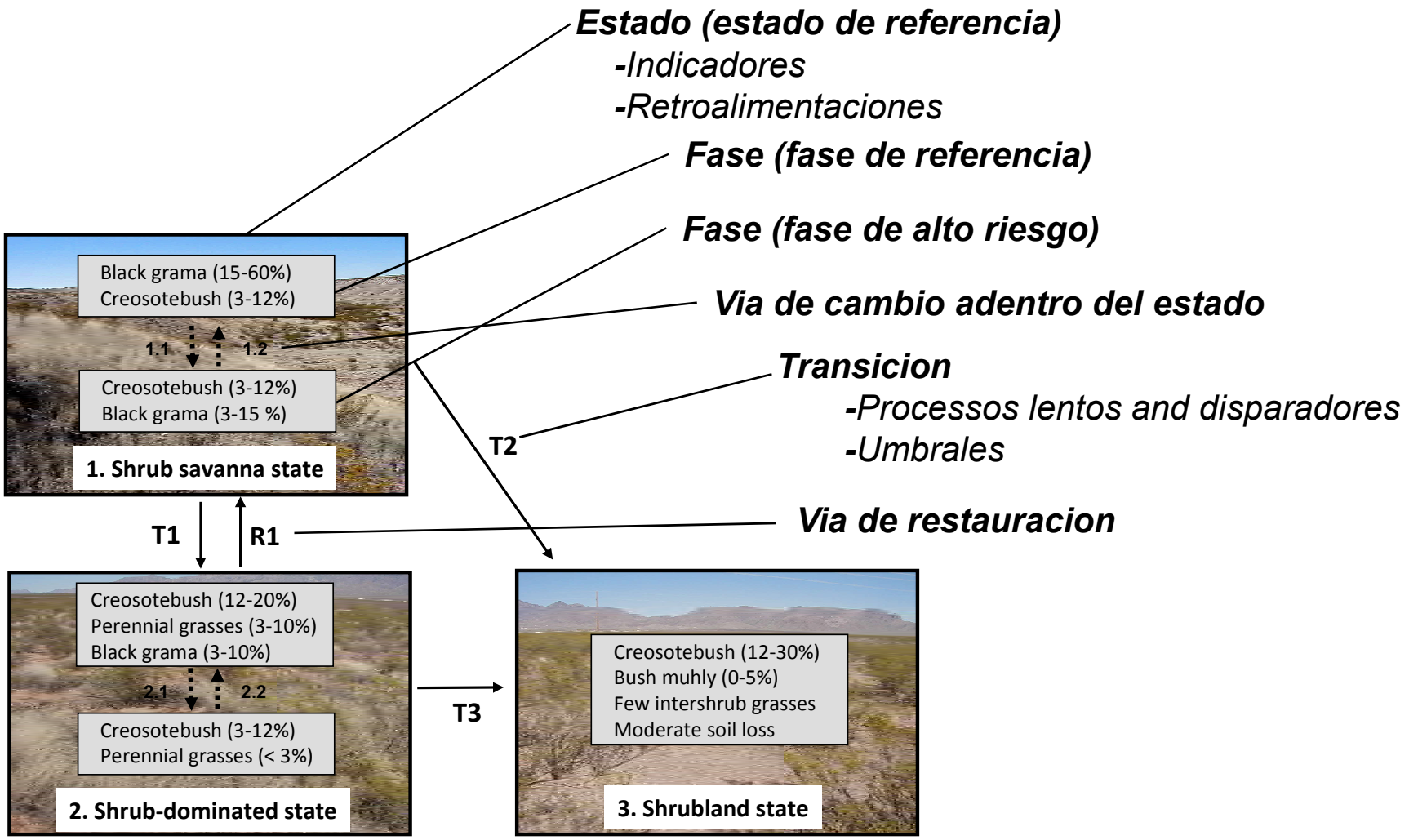
***Procesos lento e indicadores*: Enfoque en producción de forraje en vez de indicadores de degradación**



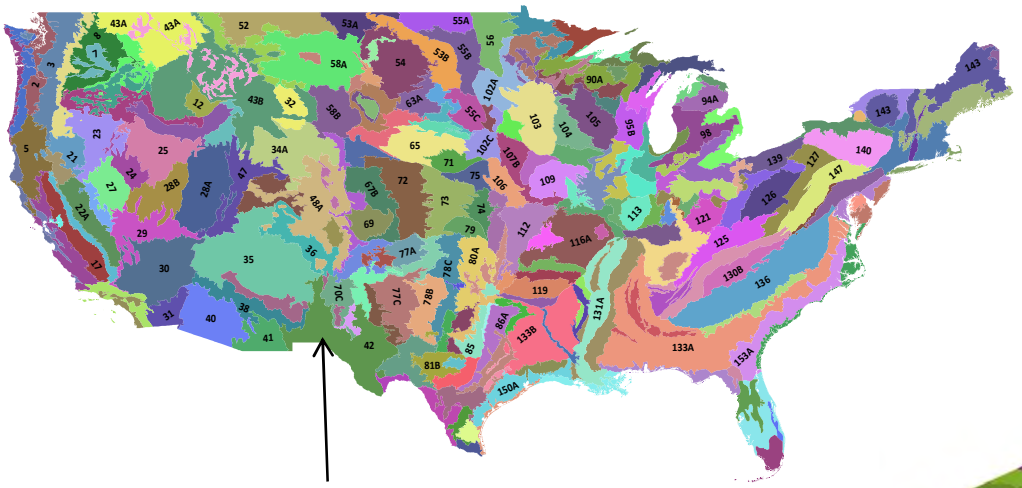
***Mecanismo de transición*: Causalidad múltiple: sequia fuerte de 6 anos, sobre consumo de forraje durante la sequia, y vientos fuertes que causo erosión.**

Formato actual de modelos de estado y transiciones

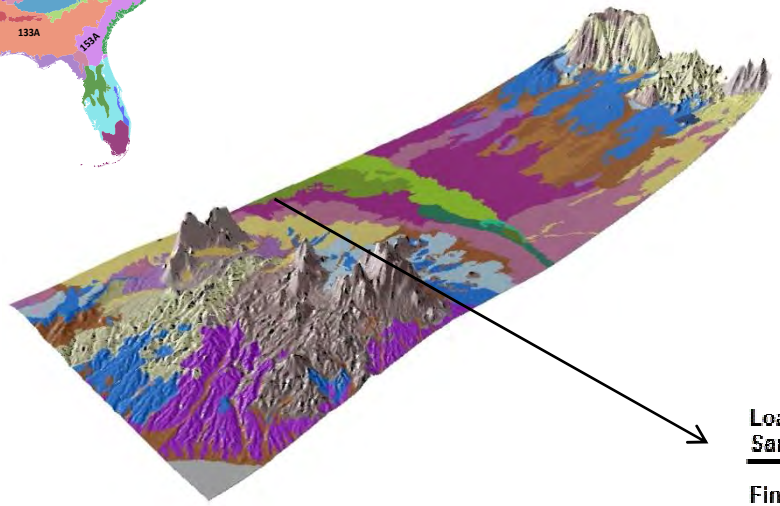
Interagency Ecological Site Handbook for Rangelands 2012



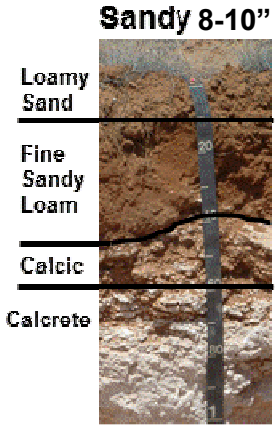
Como se usa MET ligado a sitios ecológicos



Major Land Resource Area
(Ecoregion)

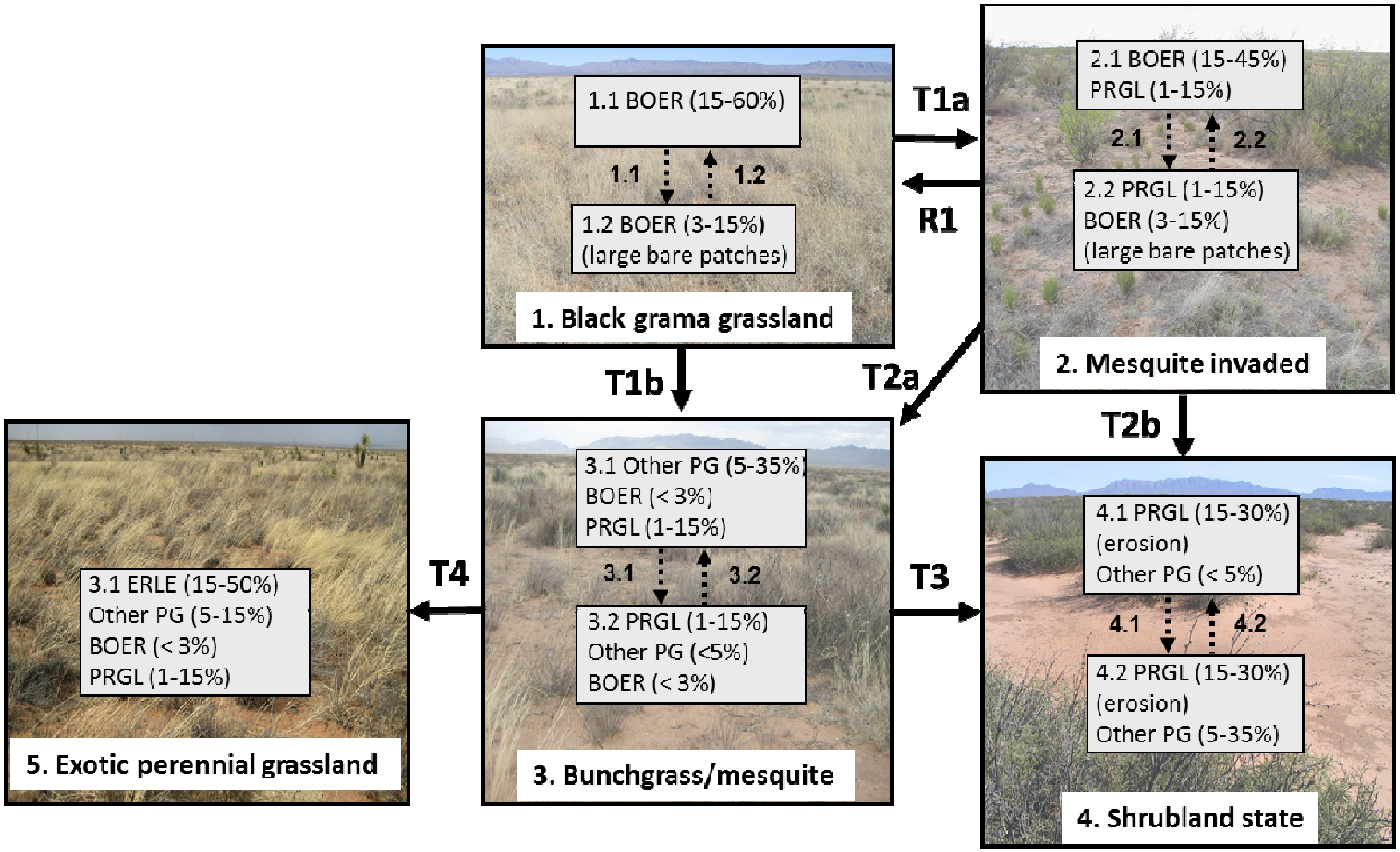


Subregion
Mapas de suelo, geoforma



Perfil de suelo y clima local
→Sitio ecológico

Modelo de estado y transiciones



T1a. Mesquite establishment facilitated by seed transport by cattle, bare patches > 50 cm, and relatively wet springs
R1. Shrub removal via herbicide or fire followed by black grama recovery to > 15%
T1b, T2a. Black grama is reduced below ca. 3% cover by heavy grazing in drought
T2b, T3. At perennial grass cover < 5%, wind and storm events, trigger deep, spreading soil erosion
T4. Invasion by Lehmann's lovegrass, dominance increased by fire

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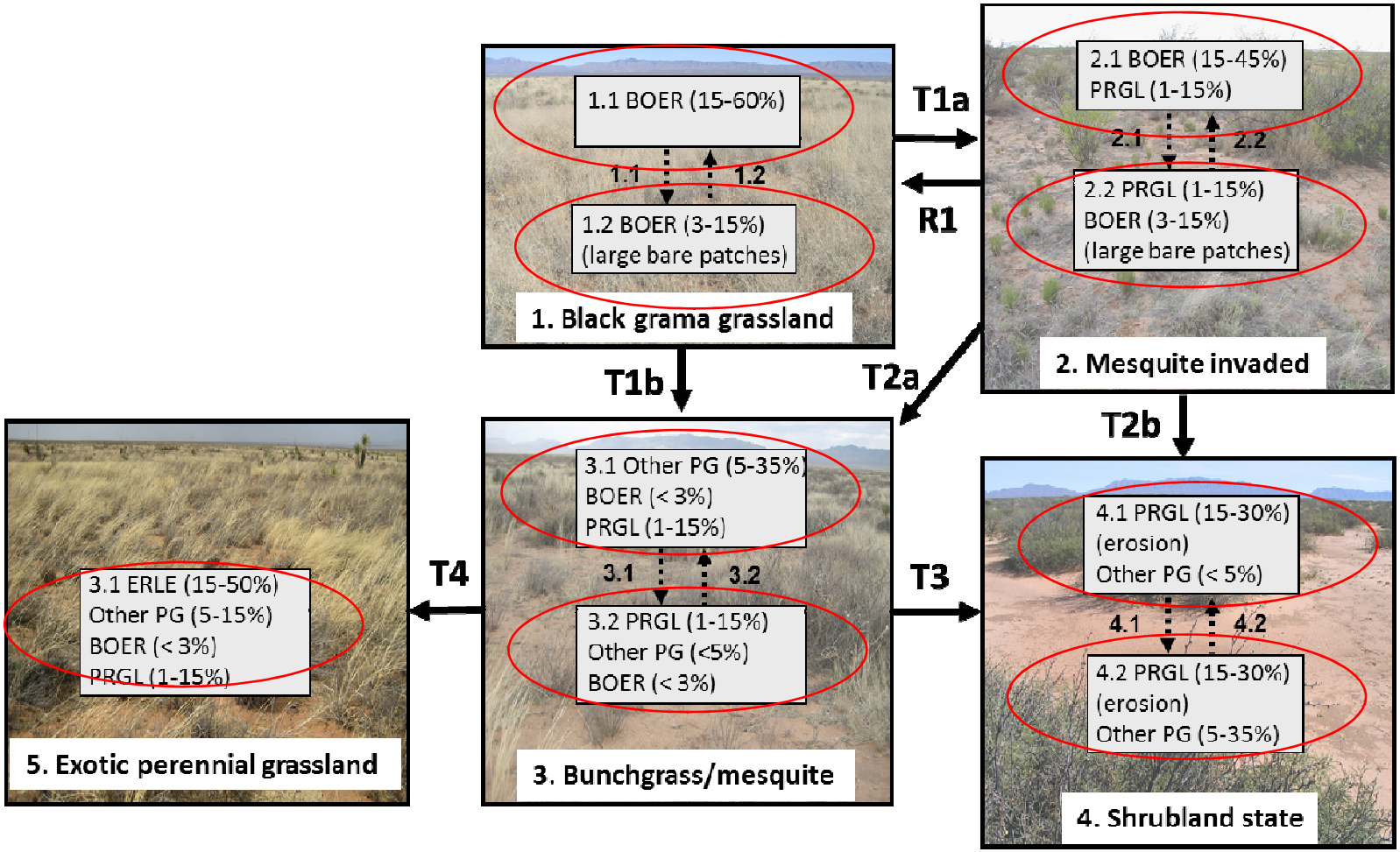

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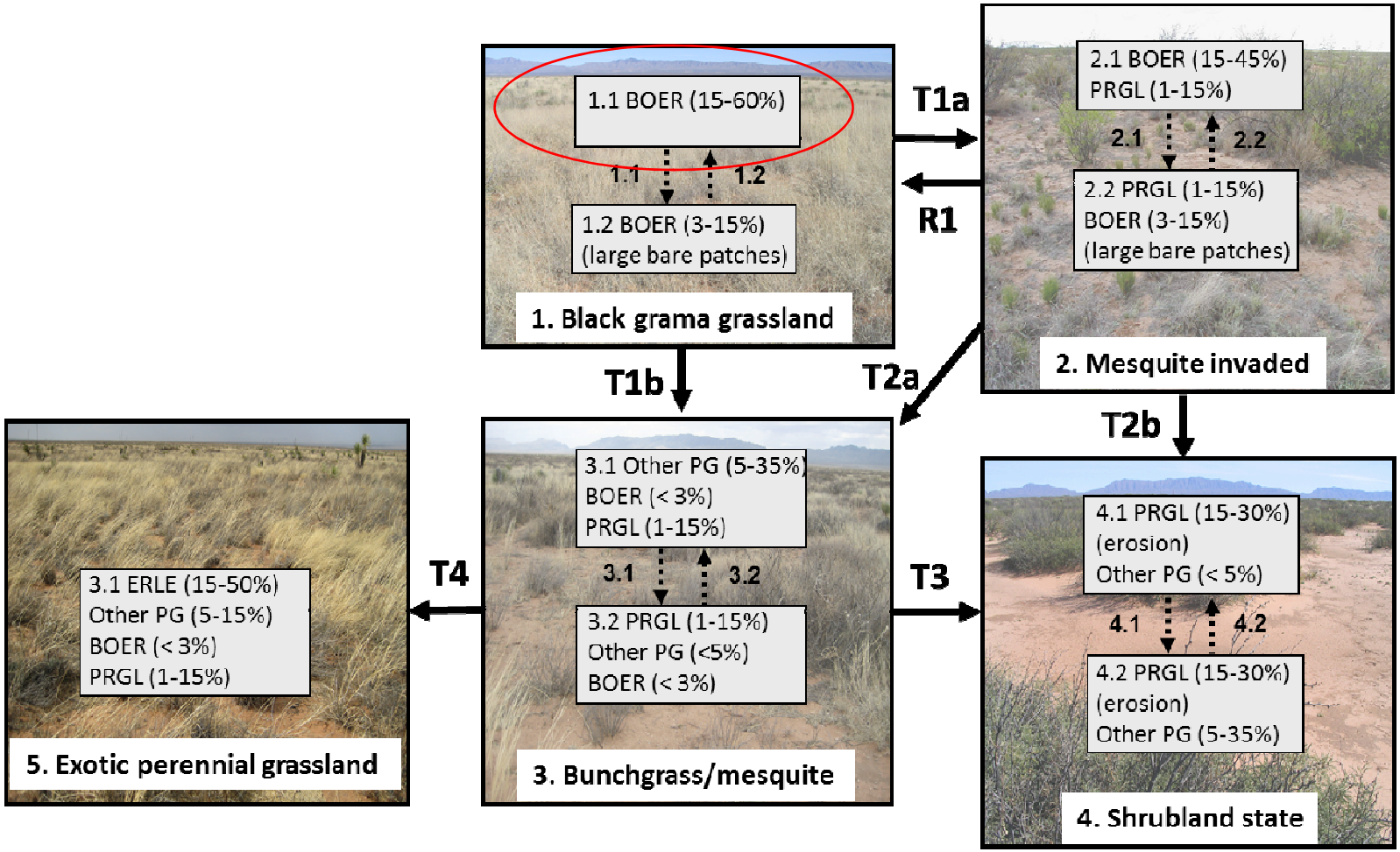

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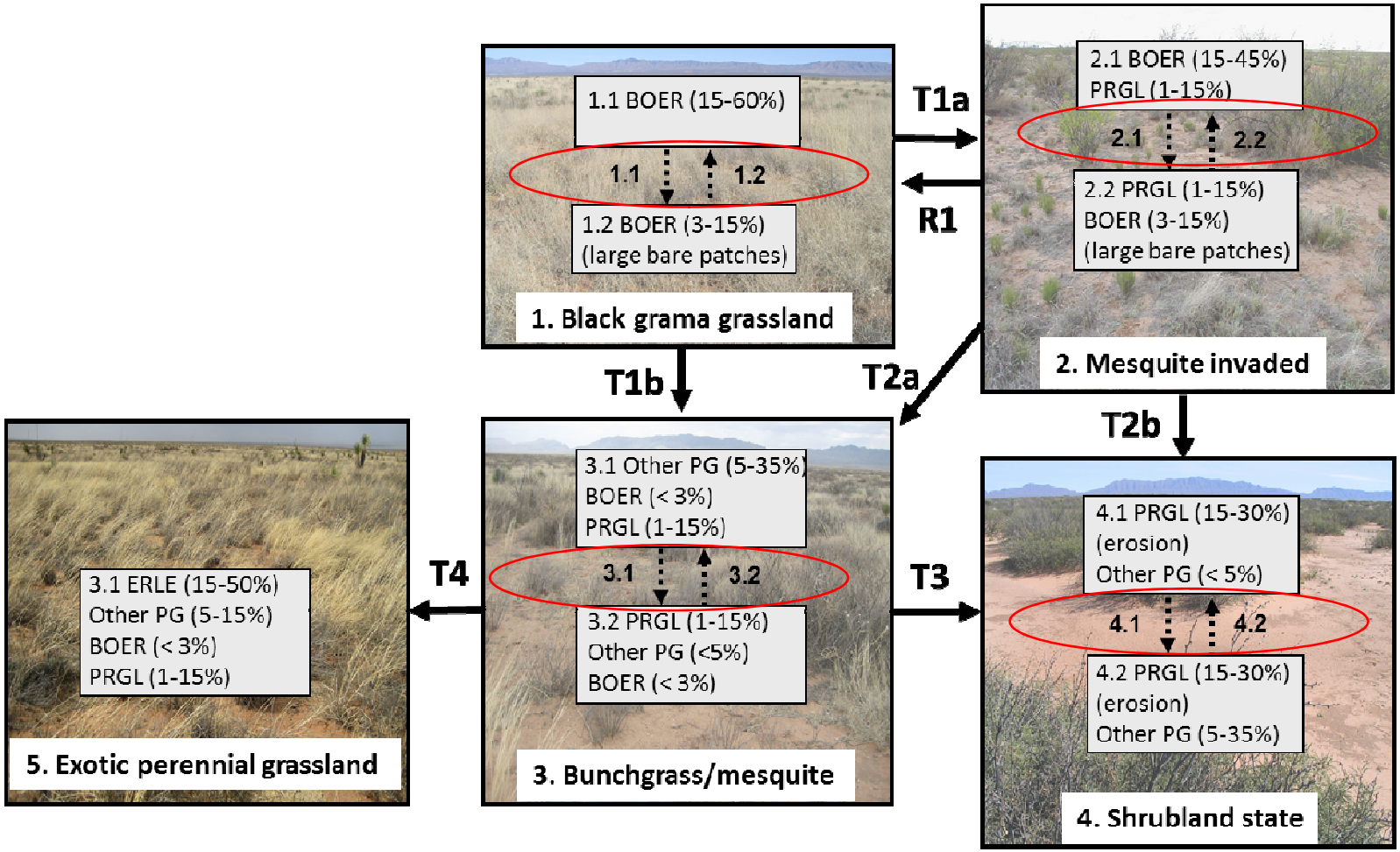

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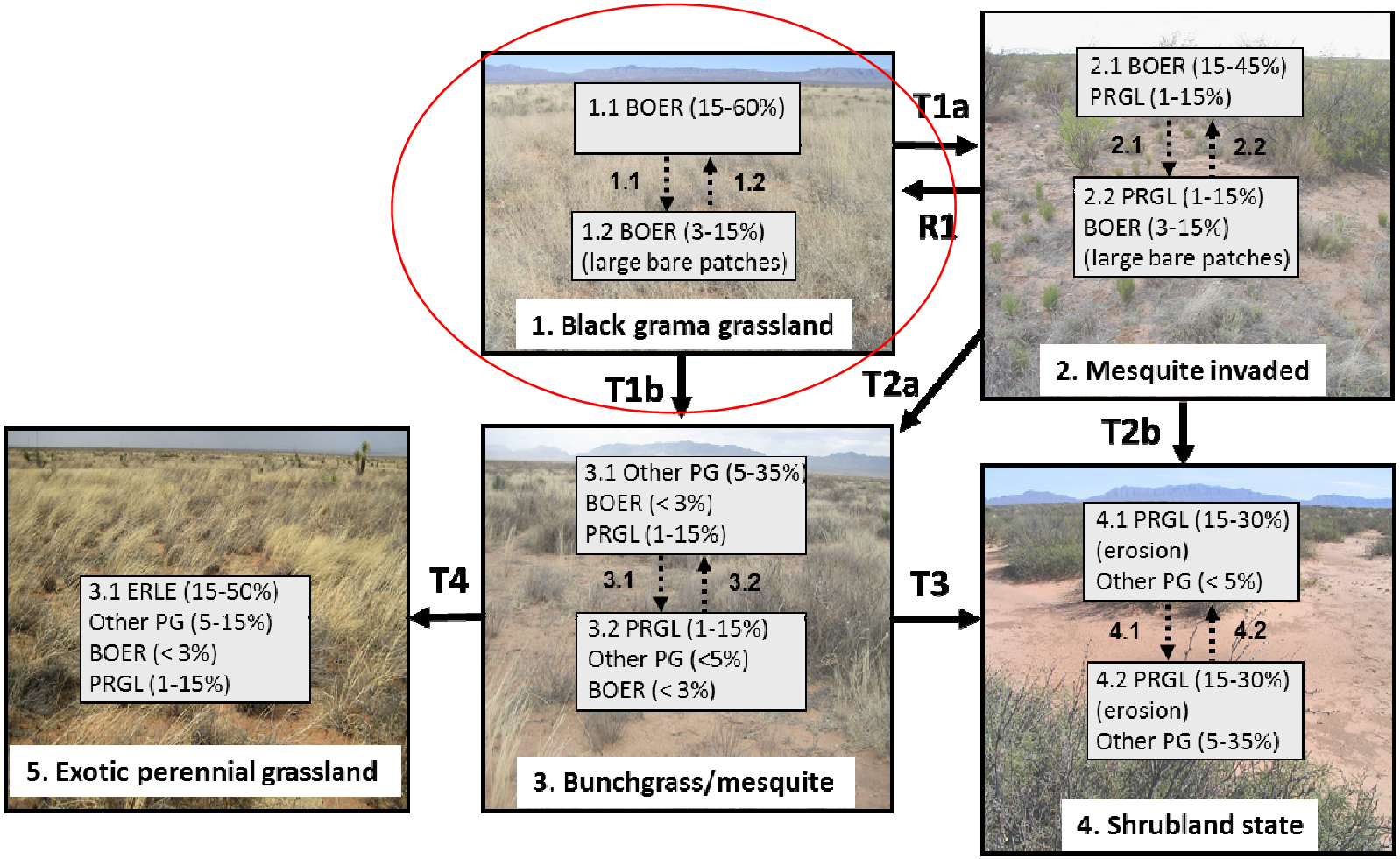

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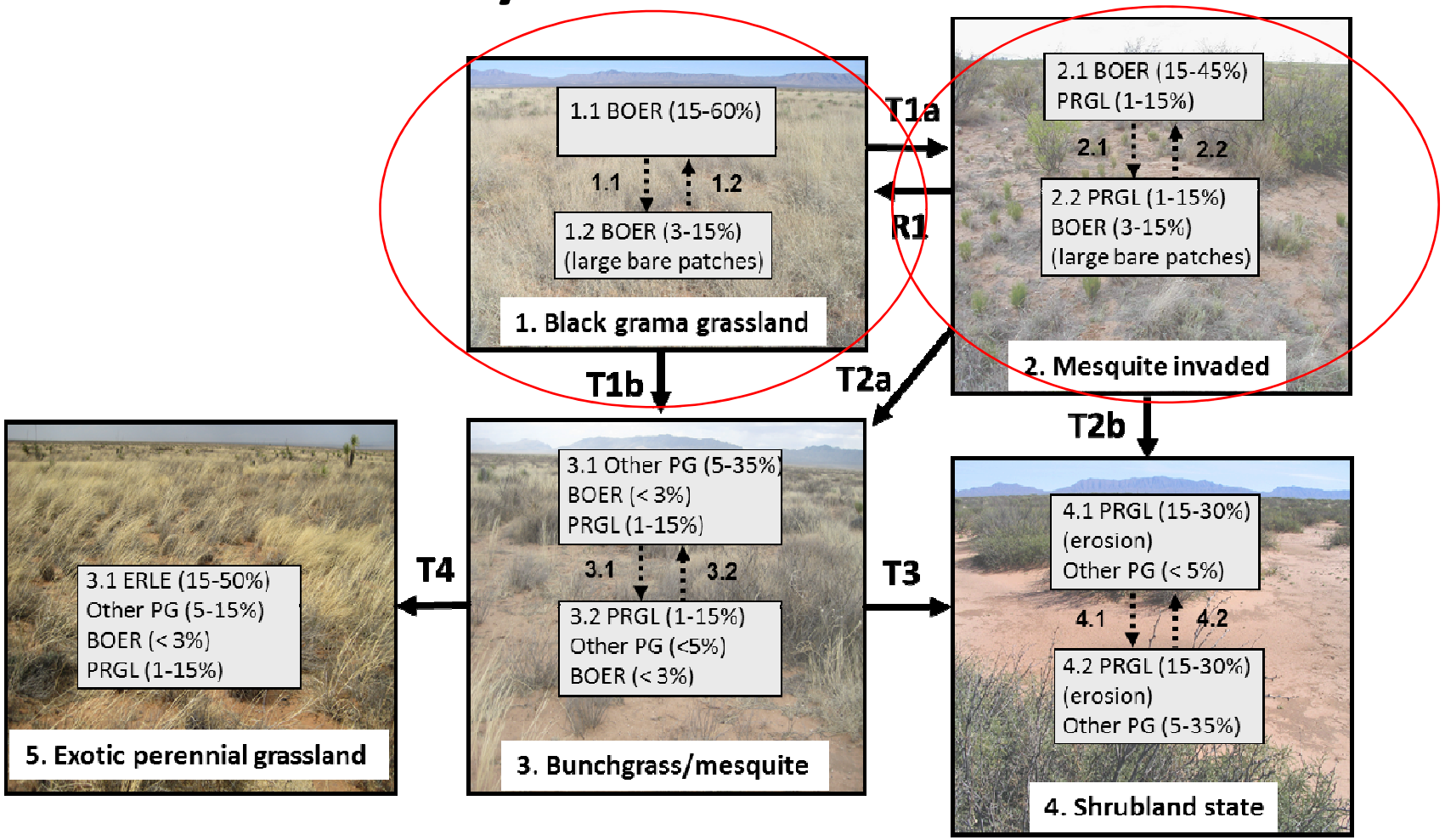

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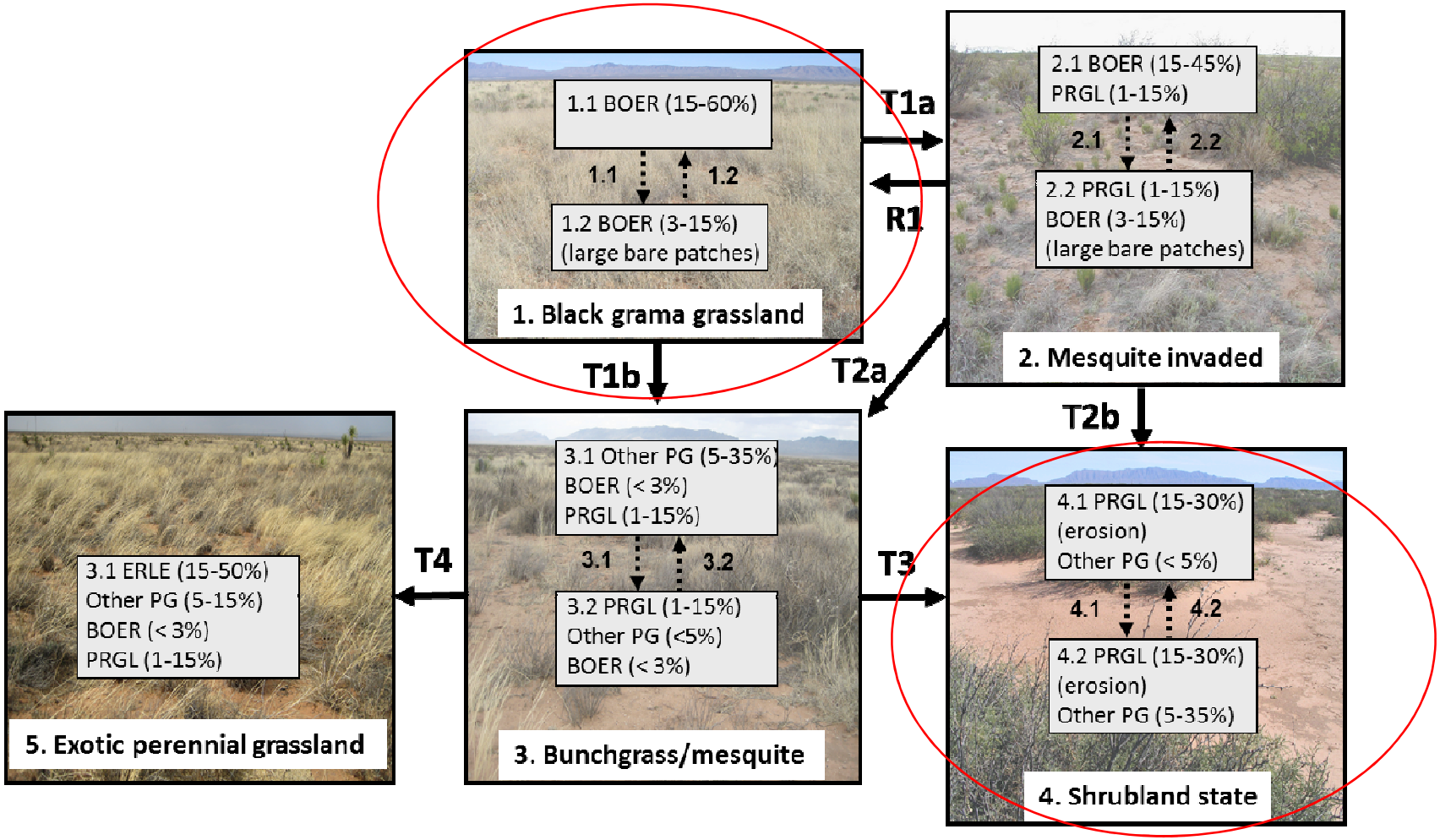

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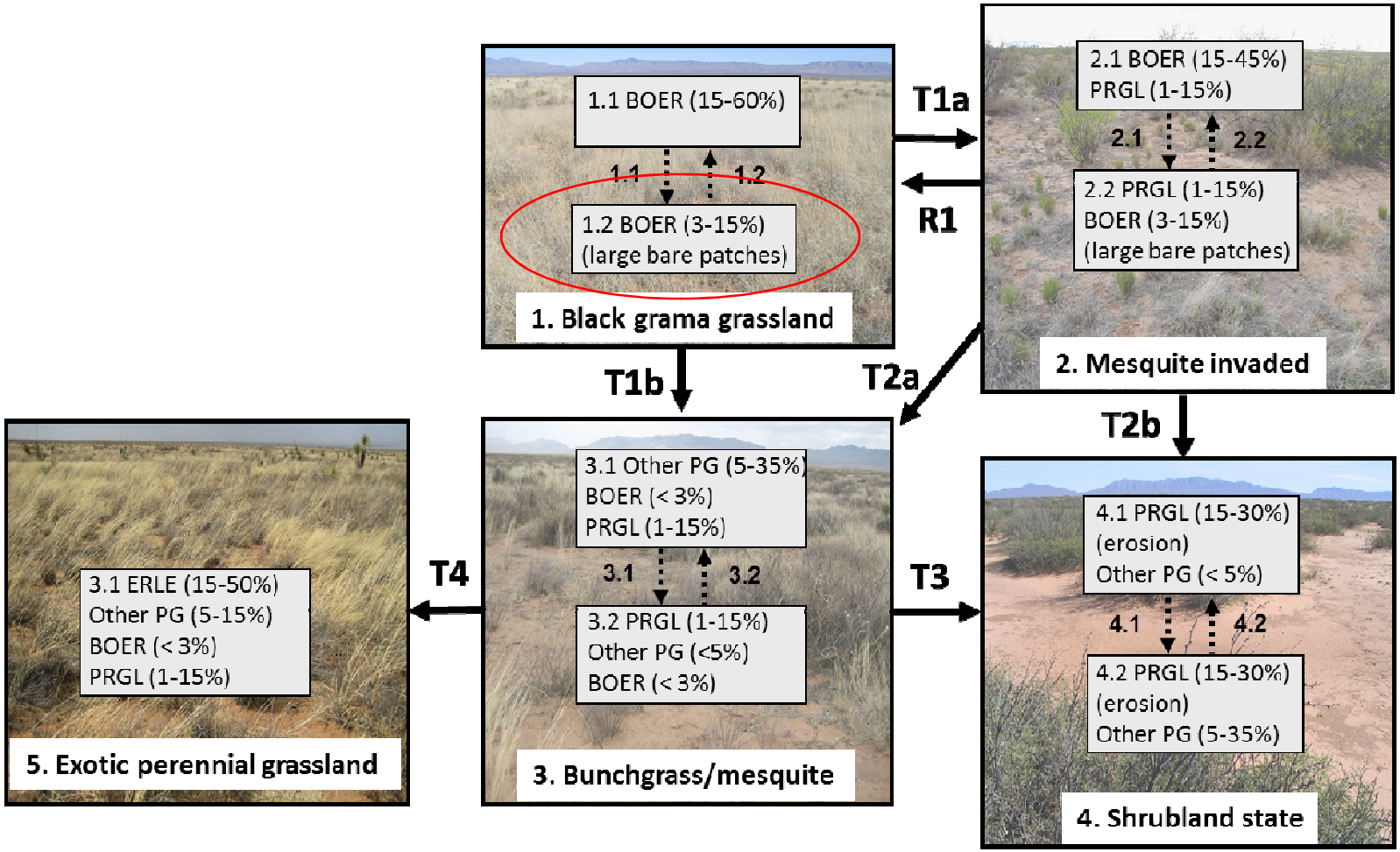

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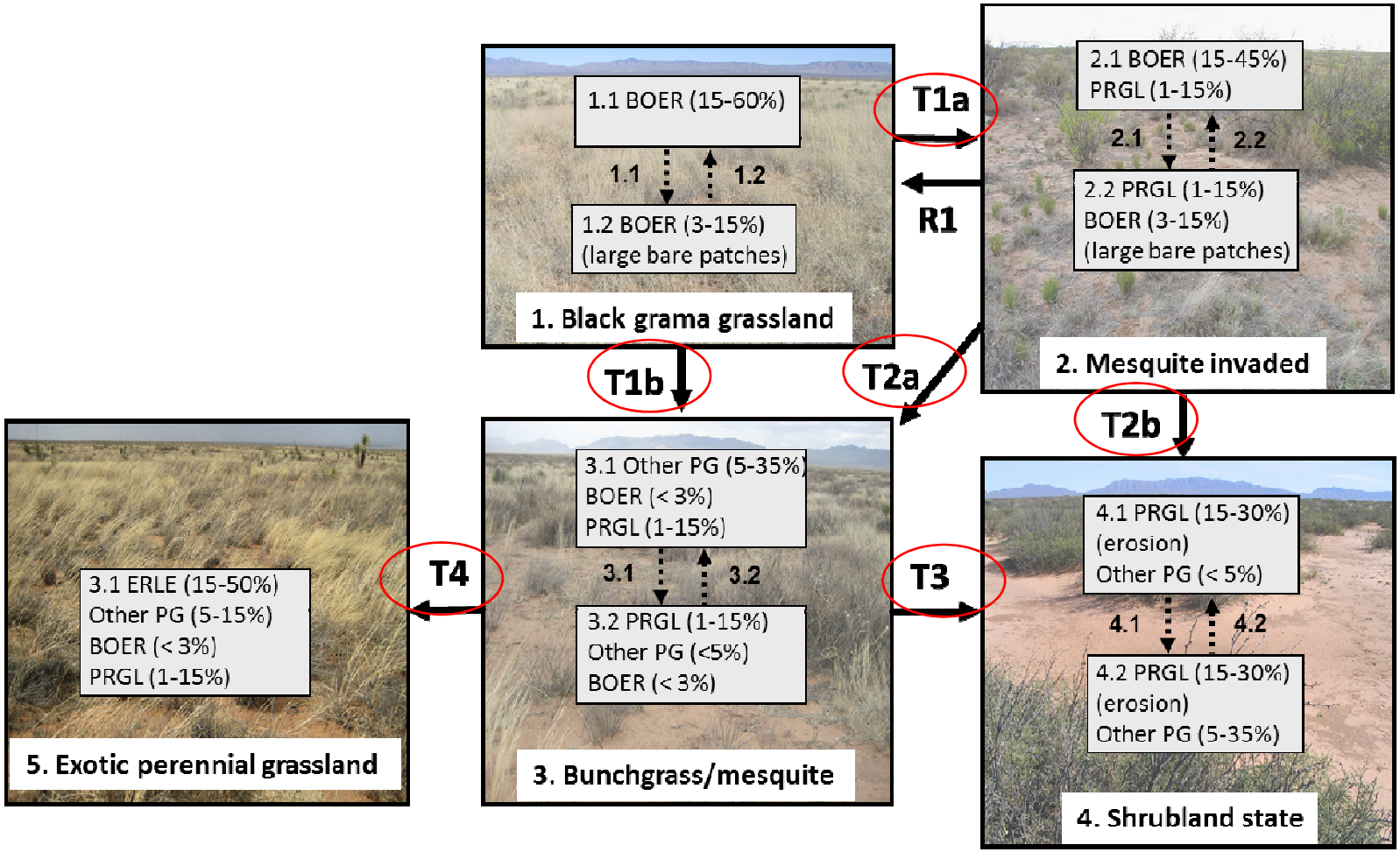

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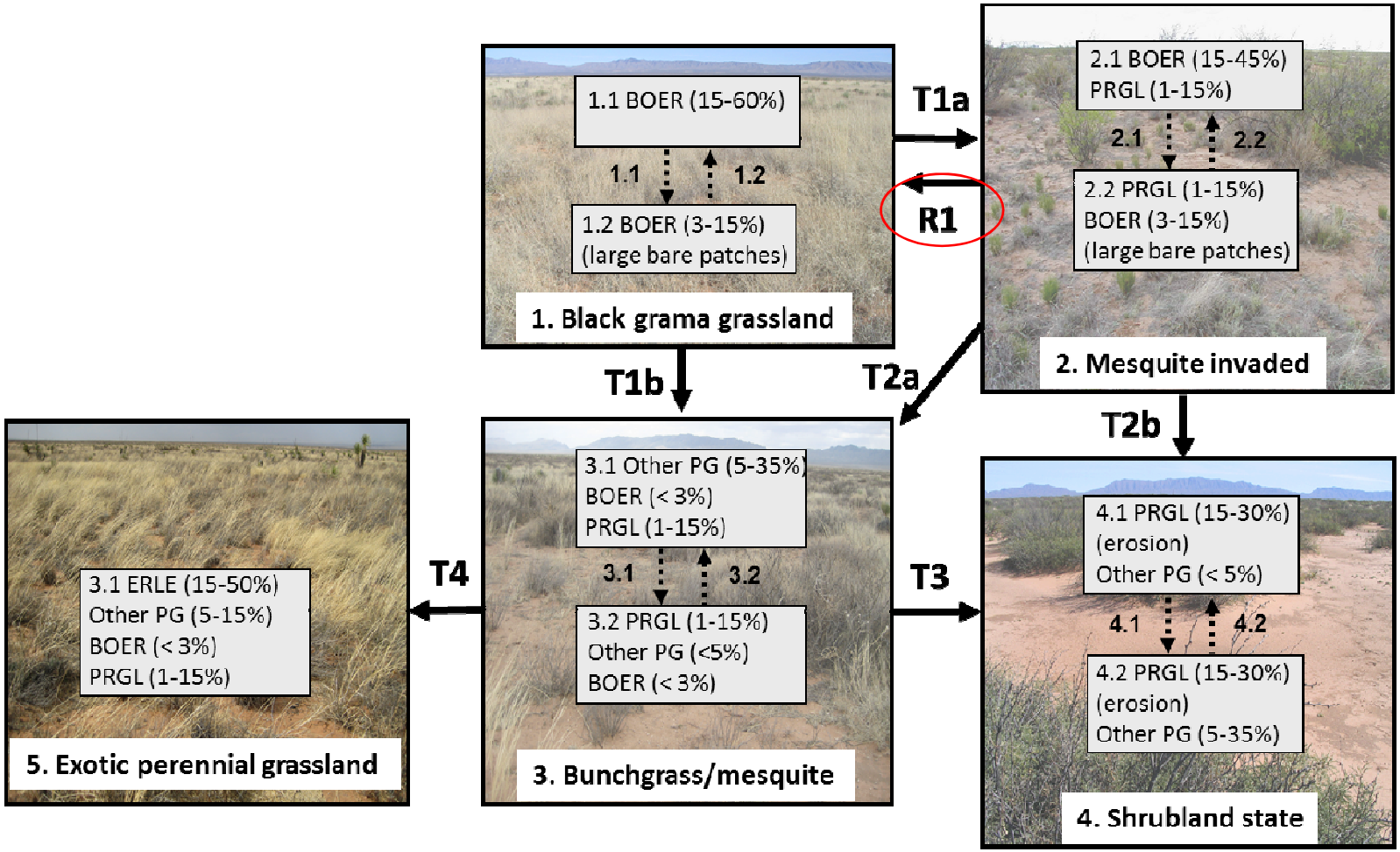

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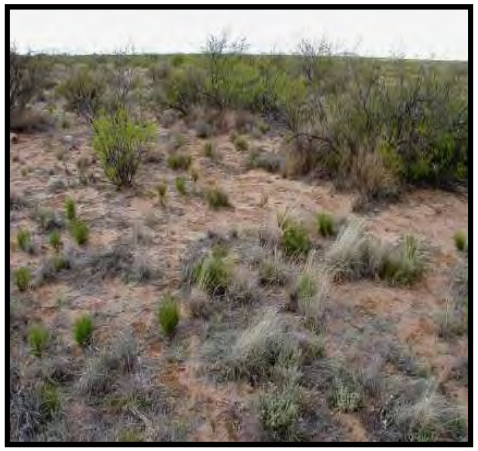
Servicios ecosistemicos de cada estado

Ecological states and services of Sandy ecological site: MLRA 42.2

Native perennial grassland

-excellent forage (phase 1.1)
-soil stabilization (phase 1.1)
-“nativeness”



Mesquite-invaded

-wildlife values (quail habitat)

Shrubland

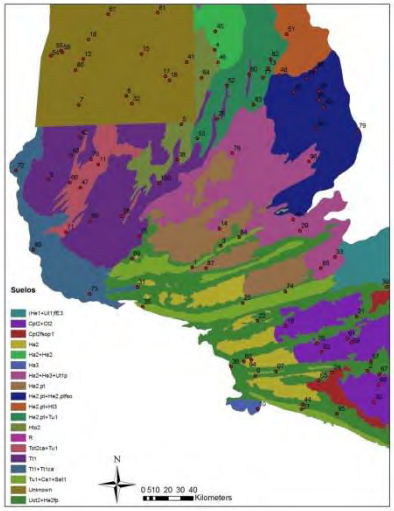
-sustained NPP during prolonged drought

Exotic perennial grassland

-grassland functions given warmer climate

Fuentes de información

Mapas de suelos

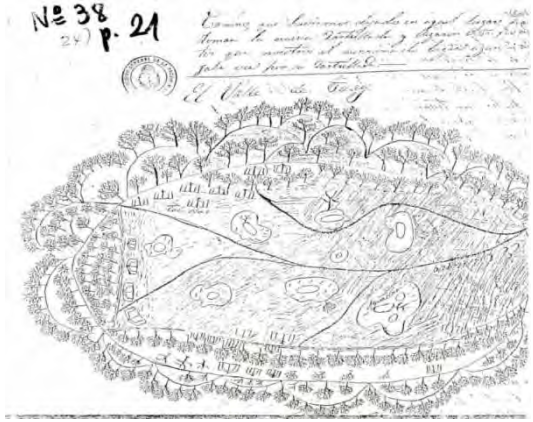


Muestreo “integrado” *de vegetación y suelos*

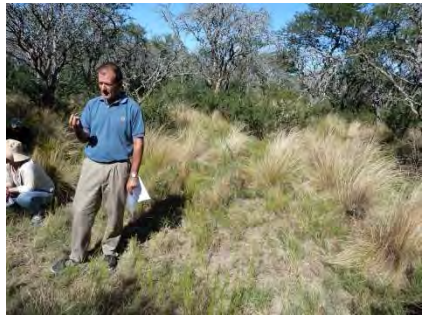
Monitoreo

Experimentos de manejo

Reconstrucción histórico



Talleres y entrevistas



Usos de MET: predicciones de los efectos de restauración

Control de arbustos: efectos de distintos procesos sobre pastos

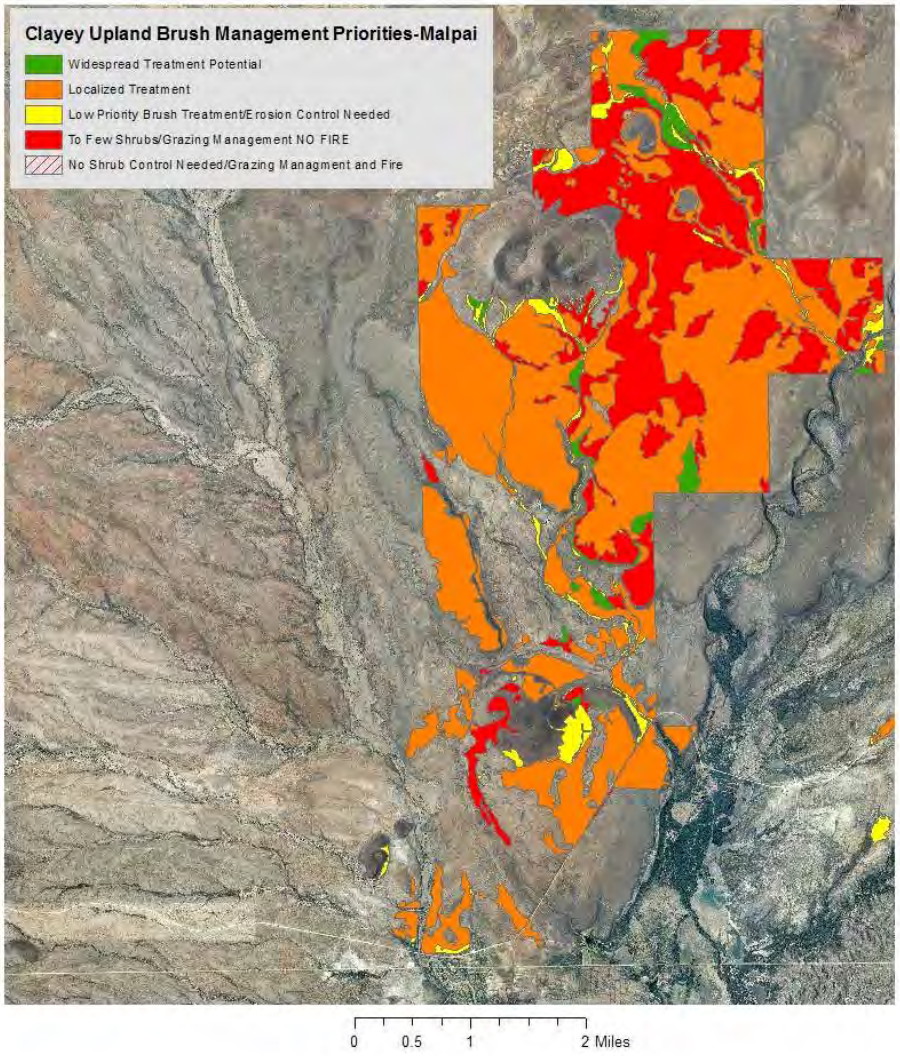
Recuperación de pastos por liberación de agua de suelo

Degradación del superficie del suelo (=anuales)

Otros competidores (=cactos)

Limitaciones en el potencial de algunos suelos (=plantas escasas)

Usos de MET en paisajes (“unidades funcionales”)



Mapeo de estados y fases sirve poner la información de MET en forma para planear con dueños y comunicar con oficiales