

Subject: Re: Seed Mix Request for Well Pad Reclamation
Date: Thursday, September 12, 2024 at 2:37:16 PM Mountain Daylight Time
From: Verquer - DNR, Trent
To: Kris Rabida
CC: Cooley - DNR, Casey, Marette - DNR, Brandon, Christopher Shephard
Attachments: image001.jpg, CPW_NE recommended mitigation LOAMY seed mix for deer, PSTG, & GPC.xlsx, CPW-NE recommended mitigation SANDY seed mix for deer, PSTG & GPC.xlsx, CPW-NE recommended mitigation seed mix for pronghorn.xlsx, Dry Alkaline soil type SB181 standard mix deer & pronghorn.xlsx, Saline subirrigated-wet alkaline soil type standard seed mix.xlsx

Thanks Casey, Kris and Chris,

We can certainly take a closer look if you know the ecological site descriptions of the respective pads, but to start the conversation attached here are some starting base mixes for a couple general ecological site categories. You can determine ecological site descriptions if you do not know them by accessing the Natural Resources Conservation Service Web Soil Survey - <https://websoilsurvey.nrcs.usda.gov/>. You can use this tool to map the locations around the individual pad locations and generate ecological site descriptions and plants lists that occur on those sites.

Keep in mind these are base mixes and some species in these mixes were included for areas that were currently farmed and are going back into habitat so there is a likely possibility we may need to discuss and tweak these to fit the sites and landscape where these pads exist.

Please reach out if you have questions on how this spreadsheet seed mix calculator works-there is information included in the instructions tab but if you are not familiar with ECS-05s and building seed mixes on a seeds per square foot basis it may be confusing.

Regards,

Trent

On Tue, Sep 10, 2024 at 10:59AM Kris Rabida <krabida@cdhconsult.com> wrote:

Casey - thanks for your help connecting me with Brandon and Trent.

Brandon and Trent,

Just as a little background, I'm an environmental consultant guiding an oil and gas operator through

environmental regulations and inspections. My client operates 6 separate sites/pads in southern Arapahoe and northern Elbert counties and during a recent Energy and Carbon Management Commission inspection, we were requested to consult with CPW regarding seed mix recommendations. The sites are located in the mule deer and pronghorn winter concentration areas and if possible, could you please give any guidance on preferred seed mixes in those high priority habitats?

Thank you,

Kris Rabida
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From: Cooley - DNR, Casey <casey.cooley@state.co.us>
Date: Tuesday, September 10, 2024 at 10:33 AM
To: Kris Rabida <krabida@cdhconsult.com>
Cc: Marette - DNR, Brandon <brandon.marette@state.co.us>, Trent Verquer <trent.verquer@state.co.us>
Subject: Seed Mix Request for Well Pad Reclamation

Hi Chris,

Thanks for the call today. Per our conversation, I have cc'd Brandon and Trent they can help you with potential seed mixes that might be appropriate for your site (arapahoe and elbert counties) and wildlife species (deer and pronghorn).

Sincerely,

Casey

Casey Cooley
Habitat Conservation Supervisor



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Seed Ordering and Mixing Sheet

Cooperator/Project Name CPW recommended mitigation mix for pronghorn
Tract/Field No

Date 9/12/24
Acres 1

Requirements for Seed:

All seed must be of USA or Canada origin. Seed must be mixed and bagged as shown below. Any substitutions for plant species or cultivars must be approved by NRCS. Bulk pounds for each species must be on the seed tag or provided on a separate sheet from the seed dealer.

Common Name	Genus, species	Cultivar	Pounds Pure Live Seed (PLS)
Fluffy Seeds (Bag 1):			
Blanketflower	Gaillardia aristata		0.22
Fourwing Saltbush	Atriplex canescens		0.40
Large Hard Seeds (Bag 2):			
Green needlegrass	Nassella viridula	Lodorm	0.24
Needleandthread	Hesperostipa comata		0.27
Indian ricegrass	Achnatherum hymenoides	Paloma	0.31
Slim-leaf penstemon	Penstemon angustifolius		0.14
Dotted Gayfeather	Liatris punctata		0.14
Tahoka Daisy	Machaeranthera Tanacetifolia		0.11
Sainfoin	Onobrychis vicifolia	Shoshone	1.74
Rocky Mountain Beeplant	Cleome serrulata		0.68
Small burnet	Sanguisorba minor	Delar	1.04
Winterfat	Krascheninnikovia lanata		0.14
Rubber rabbitbrush	Ericameria nauseosa		0.04
Small Hard Seeds (Bag 3):			
Sandberg bluegrass	Poa secunda		0.05
Alfalfa	Medicago sativa	Ladak	0.20
Blue flax	Linum perenne	Appar	0.15
Cicer milkvetch	Astragalus cicer	Lutana, Monarch	0.22
Pale evening primrose	Oenothera pallida		0.07
Prairie Coneflower	Ratibida columnifera		0.05
Prickly poppy	Argemone polyanthemus		0.03
Rocky mtn. penstemon	Penstemon strictus	Bandera	0.09
Scarlet globemallow	Sphaeralcea coccinea		0.09

Seed Ordering and Mixing Sheet

Cooperator/Project Name CPW mitigation mix for deer, PSTG & GPC

Date 9/12/24

Tract/Field No

Acres 1

Requirements for Seed:

All seed must be of USA or Canada origin. Seed must be mixed and bagged as shown below. Any substitutions for plant species or cultivars must be approved by NRCS. Bulk pounds for each species must be on the seed tag or provided on a separate sheet from the seed dealer.

Common Name	Genus, species	Cultivar	Pounds Pure Live Seed (PLS)
Fluffy Seeds (Bag 1):			
Little bluestem	Schizachyrium scoparium	Pastura, Camper, Cimm., Blaze	0.34
Yellow indiagrass	Sorghastrum nutans	Cheyenne, Holt Llano	0.51
Big bluestem	Andropogon gerardii	Bison, Champ, Kaw, Pawnee	0.44
Blanketflower	Gaillardia aristata		0.22
Fourwing Saltbush	Atriplex canescens		0.40
Large Hard Seeds (Bag 2):			
Green needlegrass	Nassella viridula	Lodorm	0.24
Indian ricegrass	Achnatherum hymenoides	Paloma	0.06
Purple prairie clover	Dalea purpurea purpurea	Kaneb	0.06
Small burnet	Sanguisorba minor	Delar	0.83
Sainfoin	Onobrychis vicifolia	Shoshone	0.70
Skunkbush Sumac	Rhus trilobata		0.70
Winterfat	Krascheninnikovia lanata		0.14
Small Hard Seeds (Bag 3):			
Switchgrass	Panicum virgatum	Blackwell, Neb28, Pathfinder	0.22
Maxmilian sunflower	Helianthus maximiliani	Prairie Gold	0.10
Prairie Coneflower	Ratibida columnifera		0.07
Annual sunflower	Helianthus annuus		0.15
Alfalfa	Medicago sativa	Ladak	0.12
Yellow sweetclover	Melilotus officinale		0.07
Blue flax	Linum perenne	Appar	0.21
Black-eyed Susan	Rudbeckia hirta		0.03
Western Yarrow	Achillea lanulosa		0.02
Rocky mtn. penstemon	Penstemon strictus	Bandera	0.02