Cebolla Restoration Recon. BZ, MJS, SV

6/15/09 Wildlife monitoring - Harley Shaw
old channel area
Reach 0 Beam / Little Ceballa
fence
Reach 1
Reach 2

Reach 5 central

Reach 6 ?

Reach 7 - least probable response
plus valley wide list small + large range
/Winter Bird Count

* Bird List - get list of birds from Ken (BLM)
current
- amend list w/ new mon. efforts

literature research on what might have
been here + what's missing

AWF restoration sites?

*

* send Bill ACE Piezometer docs

* Investigate Crest Gauges

move Reach 7 road crossing
back to original site?
- better grade control
- on sandstone

①

when BLM does roads make
sure they don't bury the
available rock

* Wetland Vegetation Indicators
- develop gradient from uplands → wetland

New scouring in Reaches 2 + 3
- pts channel back in valley bottom/center

Reach 3 - plug-n-pond - GPSed as PNP1

don't like
more water valley right
saturate wetland

Knock down hi-spots (ridges)
to connect to valley center
GPSed as KNKDWN1
Scour area to connect to GPSed as SCOURCON
- Downstream limit of
Spring flow discharge
GPSed as SPRLIM
- won't dry out inv. ditch (overflow)
but will wet valley center
(no wetland loss)

②

Veg KS

Transect #2 (in reach 2) alt. site
OPSed as TRANALT
- show greatest response

scour areas mimicking Rosgen E channel
pool / riffle (grass) Photo 1943

Alt. to Plug N' Pond Reach 2
- cross vanes > keep water + sediment in inv. channel ditch
- flow splitter

line transect
- map wetland areas along transect
- differentiate b/w erosional / depositional
- develop plant list w/ wetland indicator status

Rosgen D (spring) → E (Reach 2 → 4) →

- scouring of terrace
- want all the sediment can get

Reach 4 - grade steepens / channel straightens
filter dam?
back up sediment and water
before grade steepens

longitudinal profile from Spring → Reach 4

End of relict wetland soils

Fence w/ nat. bound.

Abandoned trib
- dike / flooded back / trapped water

spike rush
Juncus balticus
no 3 square

Sand plug from road/gully Valley Left #4
- dilemma → fix the gully?
- backing up water / collecting sediment
- main channel higher priority

between Reach 4 & 5

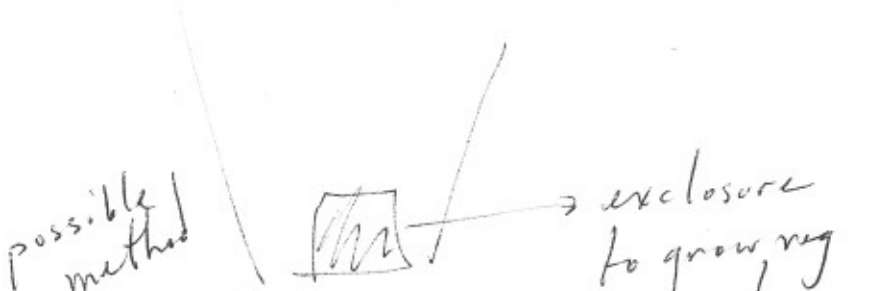
- wood for induced meandering structures

✗ - Russian olive population - eradicate!

map perimeter of J. balticus colonies

Reach 5

slope wetland



Valley Left #4

switch water from gully to road natural channel

- move plug upstream
- not as much sediment from main channel

large headcuts / narrow gullies

photos 1946 to 1947

Photopoints not part of Steve's bid

Above headcut

overbank flows evident

divert @ overbank GPSed as OVERDIV1

sheet flow up valley?

water still caught valley ~~right~~ left

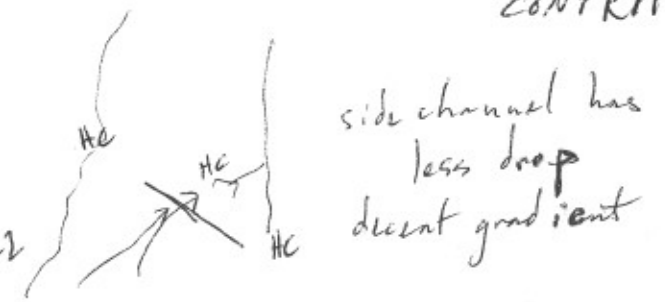
Natural Channel

incised

berm built to stop gully - GPSed as BERMV4

if add water gully will continue

- connect @ side cut GPSed as CONTRIP



GPSed as BERMV4-2

Diversion Dam → breach? and how?

headcutting not as much of a problem

fixable, but is it worth the $

3 options
1) leave it
2) → notch, no step down
breach both dams
3) go around top dam, flatter grade, breach
divert water
bottom dam

Effects
- wet meadow would be created
@ base of nat. channel

- no more headcut threatening private prop

- ↑ wetland/wet meadow ~ 2 acres

dams futile; always have drop
headcut

Tall grass - Stipa; delta/alluvial fans

sample w/in & outside original
exclosure

* Water test the Cebolla Spring
* Make overall to-do list

Road easement 150 ft. each side

veg fence → veg → sediment plug

below road berm diversion will create pond
in basin

flow splitter
- scrolling fast
-

* add to map
- fix low water crossing
- reinstall

SR - dry dams on tribs
- key into sandstone

No vine mesquite → reintroduce?

after diversion
Sand will fill in ponded areas
- promote water spreading
- flat grade ; lower power to push sand
- work like lake fan

- Need sand for Reach 2?
- at grade
- years before implementation

- Standardized XS lengths
-easier statistics
- ~~Do~~ Step Valley wall to Valley Wall
- lots of uplands

another option
- more sampling in channel / less offside
swamps any change
- Sand dropsed or alkali sacaton recruitment on ridge

another option
off set transect (fine sampling) ift.
in addition to coarse sampling (2-5ft)

Stratify by Rx

add transect to road berm / channel by fenceline

- new Plug on map
- Mtn muhly / Rky Mtn beeplant /
- 2° backup channel
  - stay pondlike
  - no sand input

junipers will create shady spot where wetland/cattails can't thrive
→ open water

Sand on clay - good growing conditions

missing shrubs / trees
- 4-wing
- Apache plume
-

- Wetland Action Plan
  - investigate ref. sites
  - generate list

- focus on herbs / forbs / grasses not wet enough for shrubs / trees esp. riparian

plant/exclose/monitor
replicates to experiment w/

* Send Steve all GIS layers

Reach 5 - moderately incised E channel
ORDs installed by AWF

- streams reconnected w/ floodplain downstream
  - signs of over banking
- needs more lifting upstream
  - ORDs

- beginning of 5 at the end of Valley Left & sediment influence
- potential for a lot of wetland
  - Rabbitbrush already dying

experimental exclosure media luna

Spring - find where water coming from
focused thinning / burning there
↑ water coming out

Headcut
bedrock / spillway
Wormditch present
- need to construct berm
- construct as Rosgen E channel

How far does the sandstone bedrock control go? GPSed as BEDROCK CON

Photo 1948

if short use cross vanes to direct flow.

Headcut looking upstream Photo 1949

Headcut travelled upstream from road X-ing or dam created hole

culvert once @ channel level to
fill pond photo 1950

3 parallel fingers
- level ground level
- would have to berm all 3
  $$$
- large bowl

would need to funnel water
into longest HC

---

worm ditch - berm to prevent headcut advancement)
30 ft^2 cross sectional area
plus floodplain
plus larger floods
B channel to step down

use material from worm ditch
for berm

water truck to compact soil

have 2 alternatives
decide based on
- cost
- disturbance
- naturalness of result
- long term feasibility (risk)

auger/drill to determine depth/extent of bedrock
ground penetrating radar
- bedrock control
further upstream ?

6/16/09 BZ, MJS, GT: Pattie Shaw Woodruff, Harley Shaw

stonehouses next to gully
- water/channel/bed once higher up
gullies date to 1920's - occurred over time
not one event
paleontology of gully ?
people everywhere
* get references for homestead era in NM

- grew carrots in the valley
- old roads → gully
Wildlife monitoring
one location in Reach 8

* Interpret soil layers/horizons of Re
- reduction zone/hydric soils
- near top
- what people farmed

road would capture stream
- straight
- no resistance (no veg)
- compaction
- downcutting due to velocity

precip.
tough climate, soils, growing season for ag

ecosystem recovery site
- gophers
  - keystone species
  - diggings promote infiltration
- prey source
- voles
- meadow mice

* History of settlers - divided up valley
- Steve Fischer
- Ken Jones
- other references?
  - newspapers (which library best for historical info)

Native American history before

History of elk? migrated in

breeding bird survey 2x spring
winter bird survey
- road impassable

Stonehouse riparian pasture
Cebolla spring riparian pasture
- fences need repair
- not tight

no one knows about the area so there's no effort to protect it

- cooperation w/ ranchers
- Ed Singleton (BLM) committed to area

* Get bird list from Ken Jones

* GPS fence near Reach 7
- dividing fence b/w 2 riparian pastures
- in poor condition
- fail safe to protect springs

voles
- use straw bales as temp. habitat

additional funding pro
Share w/ Wildlife program
Sike's Act

live trapping

no pinyon die off
** Redraw Reach 5+6 boundaries
Reach ~~5~~/6
shallowly entrenched
- grade control structures installed
- connected to fldpln
- stable channel - easy access to fldpln

develop monitoring plan
> make it repeatable

Reach 5 - baseline ; don't treat
slope wetland / no channel
model of what valley looked like
high grass density
= support rolec

Baltic rush expanding - monitor spread

* GPS all stonehouses / arch sites
- talk to Archeologist (BLM)

Gully from VL4
- creating plug
- ironic → restoring main channel areas

Aug 05
- downpour 4" in 2 hours 2" of marble sized hail
- valley flooded
- lots of sediment from VL4 gully
- plugged channel
- ponded areas

carrot fields at head of valley
- deliberately drained wet meadow
- ditch on valley left

Reach 3
working gullies from road

1997 - BLM - moved road out of valley bottom

- creek working towards valley central
- encourage wide saturation
- once spring was just a mudflat
→ western wheatgrass → Hordeum → alkali sacaton

* Contact Acoma Pueblo about wetlands on reservation
- include in Wetlands Action Plan

* Spring never productive enough to irrigate fields

Reach 1 - Cebolla Springs true cienaga groundwater based as opposed to a slope wetland

burning of cattails
killed rushes
set back wetland development

- muskrats preferred to keep open water
- cattails good at catching sediment
- even though form monocultures

valley bottom once all private land
King Brothers, Bob Lee - ranch foreman
- base ranch - on road to Pie Town from 117
land exchange for development property near Santa Fe
- Sir Bank acquired grazing rights; leased back
BLM acquired water rights as well

old grazing management
grazed Kochia all up the valley

- period of resting
- Chicago firm now owns
-

no noise coming from spring
reintroduce leopard frogs
- probably Northern rather than Chiricahua

* Call Steve and see when staking road
- accompany road crew
- get GPS data

prairie dog sighted
- burrowing owls
- where coming from?
- other satellite communities?

* Get geological history from Pat Hester *
- add to Wetland Action Plan

Lava Flows
70,000 years ago
<2,000 years ago
blocked Canyon from similar areas

Theme:
- put water back where it belongs
- use sediment as a resource
- plugs gullies back up again
- sand grows plants/grasses better than clay

Vegetation
- 4-wing saltbush - grows well in sand
- can capture and grow out of sediment

send sage
add to stakeholders list
send map info

hgshaw@windstream.net
patita@ziamet.com

mammal interactions b/w
wetlands and uplands?
~~what~~ how to monitor?
what are the objectives?
what most relates to the
wetland project?

GPS - Juncus balticus patches
track expansion over time

wildlife monitoring
track succession/migration
Reach 1 - inventory
Reach 5 - baseline
Reach 7 - low priority
Reach 10 - basin/main channel
pretreatment
Reach "8" - in newly created fld plain
pools

page left
intentionally
blank

current
wildveg.

outlet from irrigation ditch
- deposits sand
- creates plug after caught by veg
  - used to be a gully
- go thru "it looks terrible phase" before it recovers

- sand dunes plugging gullies and cattle trails

alkali location

*Purchase plant press
herbarium sheets
deposit to WNMU

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worried that diverting the ditch stream would cut off sediment downstream

- but excess supply present in dunes that the stream can rework

- volunteer for wildlife monitoring education opportunity
  - UNM, WNMU, contact professors
  - RPMC membership lists
  - AWF
* - Gallup Native American Youth Leadership Council

- BLM Wildlife Biologist
- Audoban Chapter

* - Talk to Steve F about volunteer monitoring studies

brewer's blackbird
yellow-headed blackbird
red-wing
cinnamon teal
killdeer
mallard

Longer term monitoring → cameras?
- security issue
- where to place?

* Send email to Steve V, Steve F, Shaw's

- Gray Horse brush

BLM has production data for 6-7 yrs
collected 1989 - 1996

* Jerry Wall - 2000-3 - flew canyon
for low-level photography
of springs
Get these!

<u>wolftail</u>

sediment plug
- directs water thru springfed area
- grade flattens
- aggraded 6 ft.
4th rendition of fenceline

Downstream
keep water on the terrace
- burrito dams
- resaturate terrace

creates natural dike on either
side of ditch; Juncus takes hold
ponds water on upslope side

wicks water laterally
sand + clay can wick water
30 in.

need burrowing rodents to decompact soil
otherwise rely on freeze/thaw
harvester ants have hi rise apartments
- Shaw's familiar w/ species
- important indicators of wet/dry

<u>Photopoints</u>
- Get photos from Gene
- establish in key areas
- Top of knob above Cebolla Springs
upstream + downstream

Reach 5 - reference site
- right after sediment from
VL#4

source population for voles?
+ leopard frogs?

Reach 5 - expanding slope wetland

CPS Russian olives for removal
Reach 5/6

foliar lichen grows on bare ground
instead of rocks

improve road crossing
create wetlands up to ham

berming gullies along road
- creates new gullies

1st beaver release site

willows upstream
pools further away
- beavers eat a lot of cattails
no frogs, but Woodhouse toads

evidence of a beaver slide?
or elk or bear?
Something entering water @ pool

Beavers not a pair
- no incentive to build dam/lodge
- just used isolated pools

look up Chenopodium

Reach 8

Sluff off areas, create plug
ponds back up, saturate soil (clay)
creates more sluff off areas

2X width ½ depth ↓ particle sizes
streams is longer ↑ sinuosity
only have to change the grade
by a little bit to change which
particles stream can move

layers of alternating hydric soils

look up rm olive, Rumex, Bulrush

gully is the resource to rebuild
the valley floor
- easy access to sediment
in the form of banks

- good grazing management
reduces sediment
so only from bank

where you have rock can't drive posts
so use rock
where you don't have rocks you
can drive posts
Pictures of old properties
Interviews w/ former residents ?
Bob Lee might be resource
Mayer - 88 yrs old
other inholding family

baffle emulates point bar
- reduce turbulence

look @ old survey notes
Land Office

Dick Pettie - used Survey Notes for reg
look @ bibliography

all sediment winds up by
highway against lava flow

pippet
ravens
turkey vultures
sage sparrow
mtn. bluebird
western bluebird
cay's phoebe
Stellar's jay
robin
rw blackbird
cassin's kingbird
bush tits
kingbirds
Cooper's hawk
Chipeos
green swallows

Kjones.blm.gov

Wildlife Monitoring

intense baseline

document climatic conditions

* Purchase rain gauge
* install ambient air temp hobo

* Install crest gauge w/ Dave Menzie NMGD

How many meadows realistically sample?

So trap line takes a morning; depends what you get

Hubble - 2 trap nights
= 100 trap events

* see if BLM/NMGFD/university has more traps

bird surveys done separately from rodent surveys

- any sections on the NM Breeding Bird Survey?
- volunteer bird surveys
  - establish routes
  - Audubon chapter

What to sample as far as Mammals?

mesocarnivores → trails w/ cameras ($500 ea.) (NMGFD/BLM loan?)
- responding to rodents
- top of chain
- i.e. foxes, skunks, ringtails, see what species

rodents

deer, elk, cougars present so don't need much more info

herps - used NPS protocol in past
just see herps that are day active
pit traps for snakes
labor intensive
tiger salamander?
spot counts @ waterholes to count toads
focus on aquatics and forget the rest?
draft a list that might be here.
Barbara needs to hire ornithologist, herpetologist, mammalogist

use Jennifer Frey's key to rodents

Best time of year for small mammals?

Hubble → May

May or June? or July for the monsoons?

Birds

waterfowl usage → spring/fall migrations

Bob BeMar - use his winter bird survey methods

which species will have the most response?
- which can migrate on own

Edge effect?
- bird surveys done on edge of valley
-
- interested in mesocarnivores coming to wetland

aquatic snails → in every pool
- endemic? SGC?

2. focus on small mammals and herps that will respond the most
- bird surveys - volunteer document use of wetland hab.
- meso carnivores - done in conjunction w/ sm. mammals or bird surveys - easy to set up

H.S. - try to narrow down focus

H° : if expand wetland acreage, then certain animal species will increase

reference work to develop methods

graduate student - in need of a project
- non-thesis professional paper

change bat population?

Dan Taylor
- used cameras to record bats flying over water
- spotted bat SOC?

How do you know if something's missing?
- put a lot of effort in
- probability game

H.S. modest amt of $; so need to do a few things well

Insect changes?
- using wetland area
- prey for birds

Reach 0 - big changes

Core of spring (Reach 1) - inventory

Reach 5 - reference - wetland succession fairly well along

Reach 8 - expanding fldplns i lower priority

trick tanks - don't supply veg & insects
better to do stocktank or rock header

Look @ Ken Bones list to determine what species to expect
- stratify by season

Dave Griffin - birder from Las Cruces/Alb. - knows what's there and not there/missing
USFS ornithologist (usually works the Rio Grande bosque)

What species are likely to change?
What methods are required?

Prescott College - bird professor class

once the habitats was destroyed
- very isolated so recolonization difficult

- ecosystem recovery, project
- NPS VC ~~website~~ b/w Ramah + C
- BLM office in Grants

Waterfowl present in Spring
H°: in restored wetland areas waterfowl will increase in Spring

Wash along road = Sand Canyon Wash

Horses or ATV may be necessary to check springs

Possible species sandpipers, owl, Δ's in flycatchers, black phoebe
Snipe

6/17/09 BZ, MJS, HS, PS

Gophers will require mound sampling
for density
and species (require trapping?)

- Δ's in small rodent #'s
- bats
- gopher
- raptors
- waterfowl/shorebird
- meso carnivores
- amphibians
- especially during spring migration but also winter

* Send Harley P-J fire regime papers

"Boom bats" or "Bull bats" = nighthawks
- follow upwelling of insects due to barometric press. Δs
- aquatic habitat

Distribution of transects

Reach 0
Reach 1
Reach 2 - lower part
Reach 5 - reference
Reach 8 - different system nice to know but not essential
+ casual observations

Reach 6 - reconnected w/ floy ha
may show more of an effect

Bird surveys
- done more frequently by qualified volunteers
- Kent Jones might be interested or know of interested people
- require longer periods of observation
- talk to Jenn Schramm (new Interpretive Ranger) about bird surveys / birding background
- Cornell Lab - Citizen Science program

Wetlands - ☆ I-40 - wetlands along hiway
- Acoma Reservation - playas (actual wetland 3 yrs. ~~out of~~ 10)
✗ - contact water lawyer
✗ - include information in Wetland Action Plan

Rio San Jose - just on other side of lava block
- perennial wetlands
- use as reference
- find out species diversity
- esp. plants, muskrat, beaver,

N.S. - seek out specialists
- what would be required

Neiland Pierce?
Charlie Painter?

start w/ NMGFD CSD

Randy Gray head of NRCS Wildlife (D.C.)
- contact for wildlife funding
- Restoration Design this summer
- Stakeholders Meeting July/Aug.
- NEPA - possibility of TES occurance? reintroduction site

beavers create muskrat habitat
muskrats eat cattails & other aquatic herb. plants
→ dependant on woody species for winter
- complementary

shrews?
voles?

Other Funding
Share w/ Wildlife
Sike's Act - Habitat Stamp Program

Travis Perry (~~Sherman~~ Furman College Professor) - student volunteers
- small mammal
- bat survey experience
- wife also a wildlife specialist

If species are missing? why?
· extirpated from agriculture?
OR
: blocked by lava flows?

→ look @ collections

· John Hulbard
Charlie Painter > might have ideas

any collections from Cebolla?

'look up Baily Mammals of NM
- look @ collection sites

Reach 7

- go back to old alignment
- grade control to bring grade up

Fencing part of stimulus funding?

Make sure roadside rocks are still available?

Reach 6

good vole habitat

- juniper / rabbitbrush die off
- some tracking gullies } becoming wetter
- overland sheet flow @ toe slope
  - intact rabbit pellets < 2 yrs old

Little D - infinitely braided spreading - sheet flow

residual irrigation ditch / road feature on Valley Right?

- 2 track present road/trail
- need ORDs to fill gullies
  GPSed as ORDs # ORDS2
- 3 large 3-4m Russin Olives
  GPSed as RUS OL1

Draining wet meadow

Top of Gully I - requires 4 Zuni Bowls
handmade OR Worm Ditch
Photo 1952 ; GPSed as ZBI-CB

divider b/w Reach 5+6

→ draining meadow
- Hordeum upstream

PVC - for monitoring? GPSed as PVC

Reach 5

- alkalai sacatone - flats
- Highridge of upland vegetation in valley center
- move road damage valley right
  - grade control
  - GPSed as RDDAMG; Photo 1953
  - exacerbated by trailing
  - add BERM VP106 to direct water to valley center
    GPSed as BERMADD
- sediment plug causing some rilling/degrading to get back to grade
  - leave alone
- Tamarisk GPSed as TAM
- Valley wide & channel meander
- New boundaries
  - above fan from road gully (VL #4)
  - to headcut area w/ Russian olives

- VL #4 switch to nat. channel
  - less sediment
  - & channel clear itself
  - gain wetland VL ; lose wetland VR?
- valley left more stable & wetter than Valley right
- valley right - steeper gradient rills feeding from road
- map veg groups
  - Juncus
  - alkalai sac → stand in center and measure diameter
  - Hordeum (annual?) mixed w/ blue
  - bluegrass dominated
- mark & monitor Rabbitbrush die off
  - start w/ healthy
  - condition classes 1 → 5

Reach 6

- Gouge in formerly hydric soils as opposed to sand layer
  - GPSed as GOUGE Photo 1954
    System of 3 head cuts GPSed as HC243
  - start HC shapefile layer

Headcutting due in part to the alluvial fan confining floodplain

Reach 6

- Fix headcuts w/ ZB and series of ORDs
- Use front loader to stage piles of rock
- landmark = Match
- need right size rock 1ft^3 ; resist transport
  basalt rocks lighter due to pore space

Calllegaard → get rid of gate

Reach 7

- fence - crossing destroyed
- move fence crossing to more stable area
  - near road xing ; bedrock
- induced meandering shown
- longitudinal profile
- meander quite long
  - meander within meander
  - or streambank stabilization with crossvanes
- Fence down b/w Stonehouse Pasture & Springs pasture Photo 1955
  Photo 1956
  1957

- meandering but still forming gully
  - barely any floodplain access

- Start induced meandering technique where straightens out
  GPSed as START ; Photo 1958
  use posts when ground soft/wet
  accentuate existing meandering pattern
  - mine banks
  - let stream figure out the dynamics

- New Shapefile Rock from Road Staging areas

- other option
  - connect to 2° channel GPSed as 2CH-R7
  - flow splitter?
  - more sinuous ; less length
  - which one an irrigation ditch?
    - 8 ft. higher

Farm implement Photos 1959-62
Hydric soil layers Photos 1963-64

certain sections of Reach 7
Rosgen E w/in a F

current high r dry - channel Photo 1965
1960
degraded ~ 25-30 ft. downcut 1967
since corrugated metal
w/ headgate
look up company name and see
when in operation
used for watering stock
- no outlet for irrigation

- high dam blocked channel Photo 1972
- diverted water around
- created new channel
- diversion dam → irrigation

- not much of an impoundment
bank above floor very low

- upstream boundary of
induced meandering
~~end of dam / dr clearance zone~~
@ natural channel inlet

- Chinese / Siberian Elm @ well site
skinnier
- glossy leaf
- GPSed as ELM Photo 1973 & 74

- irrigation ditch on Valley Right
that preceded dams

crested wheatgrass
considered using
using 2° channel
- flatter grade
- Outlet GPSed as 2CHDS
but decided to go w/ orig plan
induced meandering in deep channel

raise road grade 2ft.
- back up
- continue formation & connection to fldpln
- all cross rane
ORDs @ all crossovers
Baffles to ↑ ch. length & width
@ meanders

Lower down near
Rosgen G w/in F
what caused incision?
road crossing?
pipet Sandstone bedrock wearing away
- or raise other crossing

Hesperostipa
Need rolling dip upstream of Xing
all new campground to map @ crossing

~~[illegible]~~ Monitoring

Geomorph Reach 7
- plant inv. / b.t not nec.
-

R6 - Valley Transect
veg transects point

R5 - Valley Transect
map plant communities
veg trans.
want to know the most about plants
2nd best place for role release

R4 Geomorph
veg transect/survey

R2 ~~[illegible]~~ ? Geomorph (scour holes / valley trans)
definitely veg

R1 just veg 2 sites old wetland & new wetland

R0 Geomorph

B2 - phone call - 7/1/19

- proposal from Harley Shaw - bird surveys
-
-
-
-
-
-
-
-