Predictive Uncertainty

WD 110 – nr Blackfoot-Minidoka, WD140 – nr Blackfoot-Minidoka, WD33 – nr Blackfoot-Minidoka, WD120 – nr Blackfoot-Minidoka, WD33 – Clear Lk, WD34 – nr Blackfoot-Minidoka

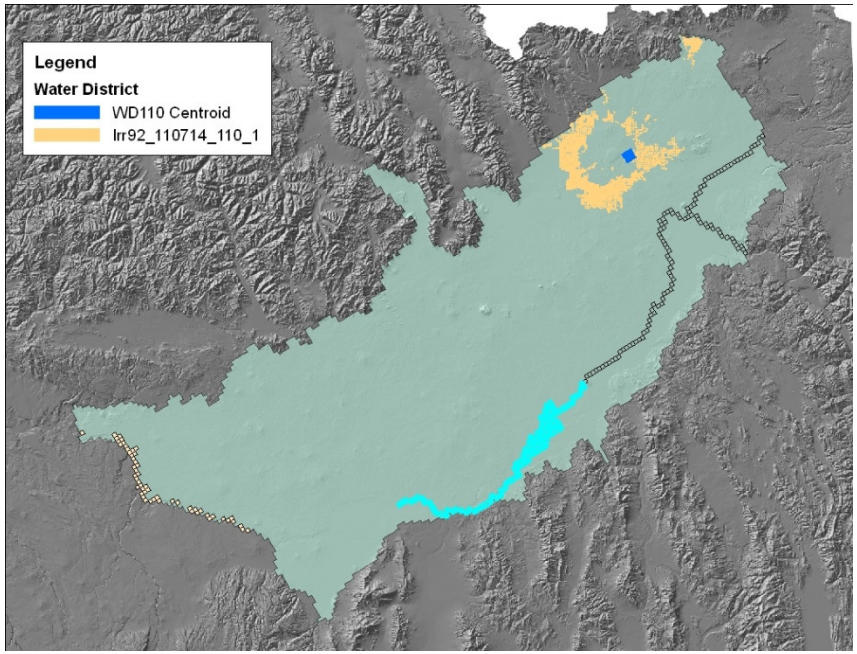
Allan Wylie IDWR

Completed Analyses

Centroid	Reach	Calibrated Impact	Maximized Impact	Minimized Impact	Model Version
WD110	Clear Lakes	0.17%	0.17%	0.16%	E110712A001
WD110	nr Blackfoot-Minidoka	26.28%	26.68%	26.09%	E120116A008
WD120	Clear Lakes	0.45%	0.93%	0.39%	E110712A001
WD120	nr Blackfoot-Minidoka	66.52%	91.33%	55.02%	E120116A008
WD130	Clear Lakes	7.11%	7.36%	6.93%	E110712A001
WD130	nr Blackfoot-Minidoka	21.56%	21.67%	14.93%	E120116A008
WD130	Ashton-Rexburg	0.94%	0.96%	0.94%	E120116A008
WD34	Clear Lakes	2.73%	3.39%	0.44%	E110712A001
WD34	nr Blackfoot-Minidoka	68.19%	86.16%		E120116A008
WD140	nr Blackfoot-Minidoka	34.86%	35.07%	34.74%	E120116A008
WD140	Clear Lakes	4.51%	4.65%	4.44%	E120116A008
WD33	Clear Lakes	0.55%	0.58%	0.53%	E120116A008
WD33	nr Blackfoot-Minidoka	61.19%	61.52%	60.60%	E120116A008

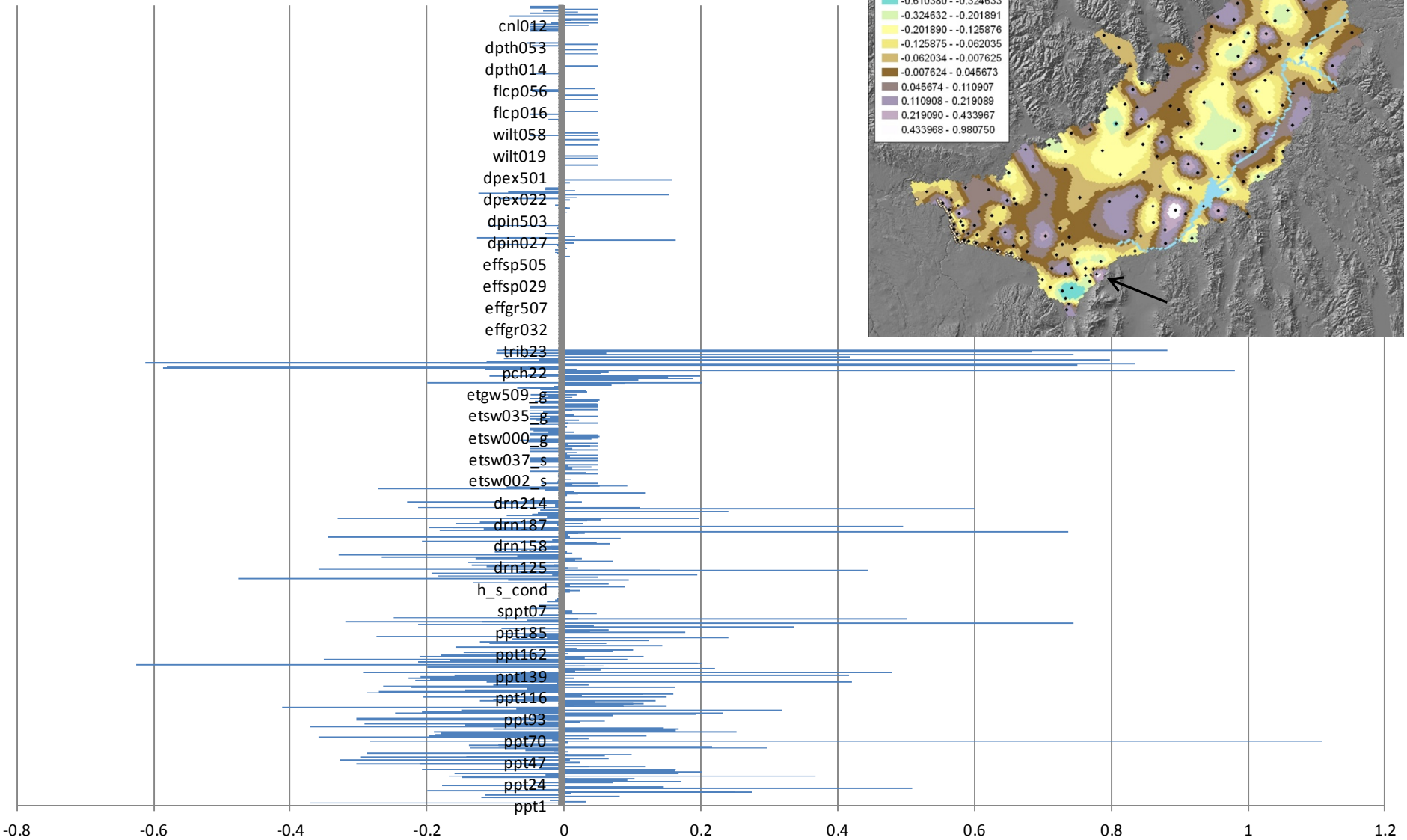
Gray rows are new
Blue rows rerun

Predictive Uncertainty E120116A008



- WD110 on nr Blackfoot-Minidoka
- Impact of centroid for irrigated lands within WD110 on nr Blackfoot-Minidoka
- How tightly assumptions and calibration data constrain prediction
- Maximize = maximize the impact on nr Blackfoot-Minidoka
- Minimize = minimize the impact on nr Blackfoot-Minidoka

(Min-Cal)/Cal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wilt058
wilt019
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pch22
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etsw037_s
etsw002_s
drn214
drn187
drn158
drn125
h_s_cond
sppt07
ppt185
ppt162
ppt139
ppt116
ppt93
ppt70
ppt47
ppt24
ppt1
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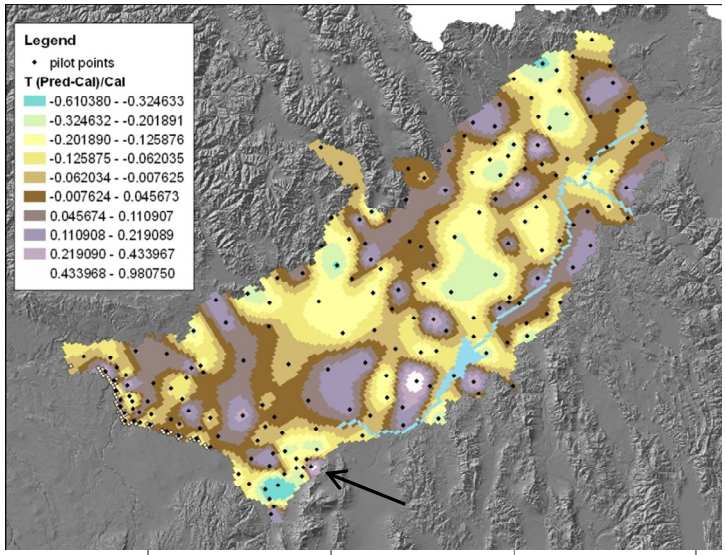
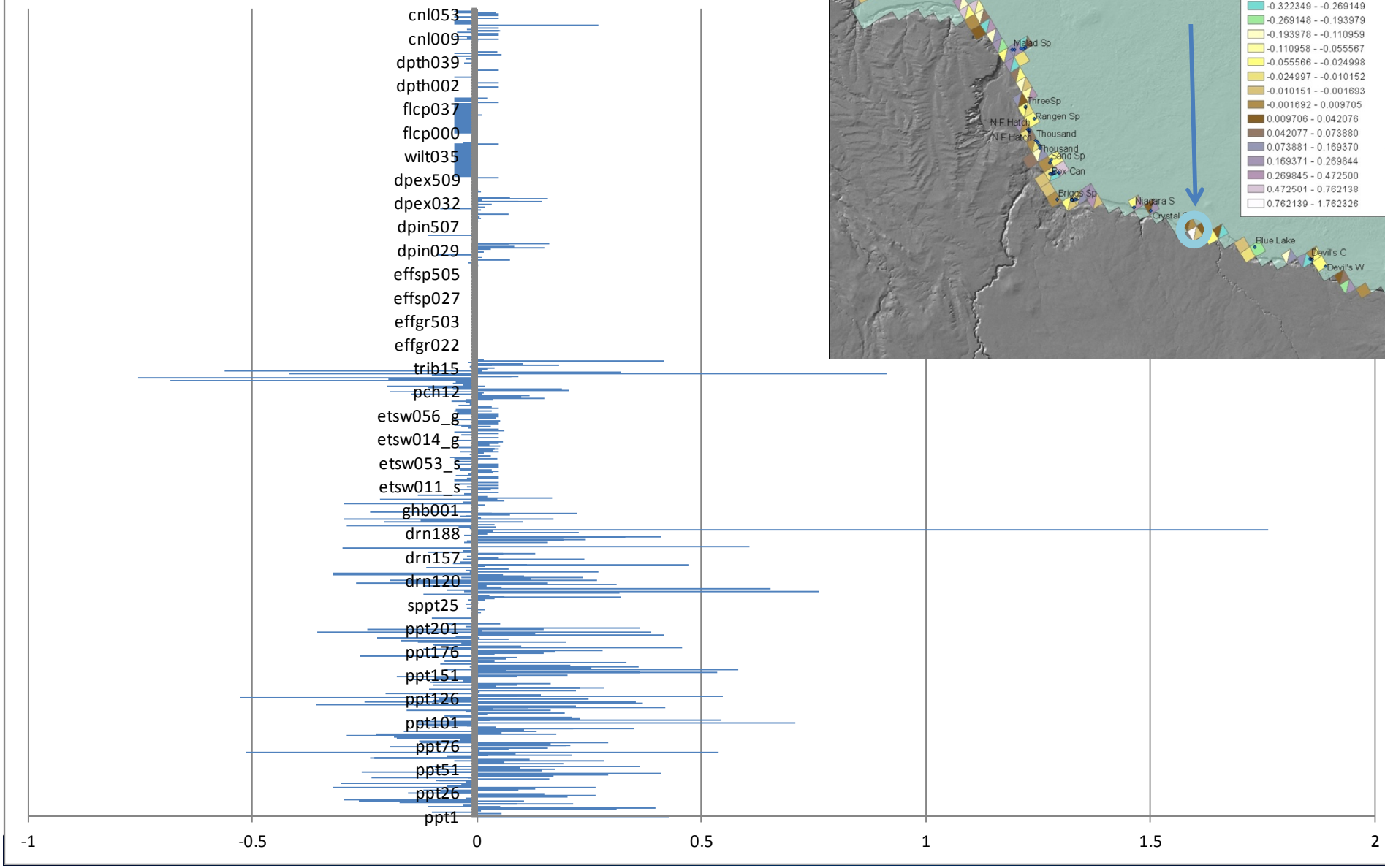
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1
1.2


Legend
pilot points
T (Pred-Cal)/Cal
-0.610380 - -0.324633
-0.324632 - -0.201891
-0.201890 - -0.125876
-0.125875 - -0.062035
-0.062034 - -0.007625
-0.007624 - 0.045673
0.045674 - 0.110907
0.110908 - 0.219089
0.219090 - 0.433967
0.433968 - 0.980750

(Max-Cal)/Cal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flcp000
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dpex509
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dpin029
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effsp027
effgr503
effgr022
trib15
pch12
etsw056_g
etsw014_g
etsw053_s
etsw011_s
ghb001
drn188
drn157
drn120
sppt25
ppt201
ppt176
ppt151
ppt126
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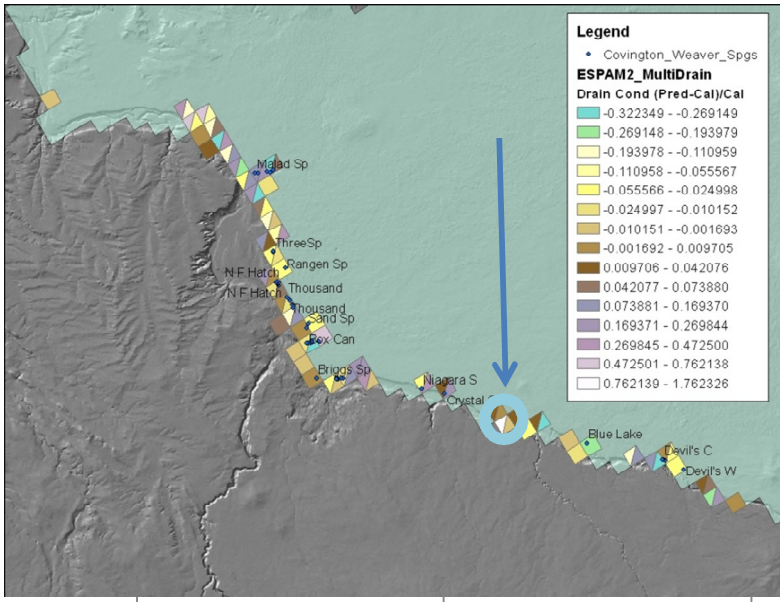
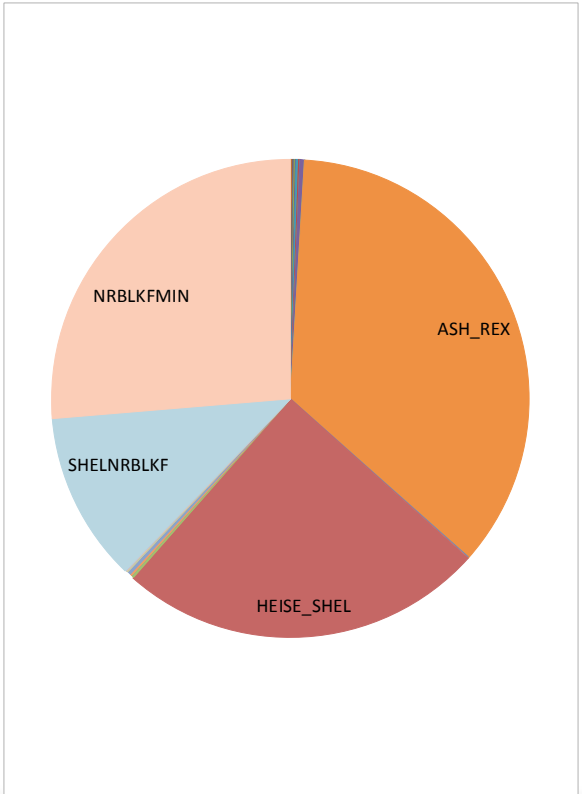
0
0.5
1
1.5
2

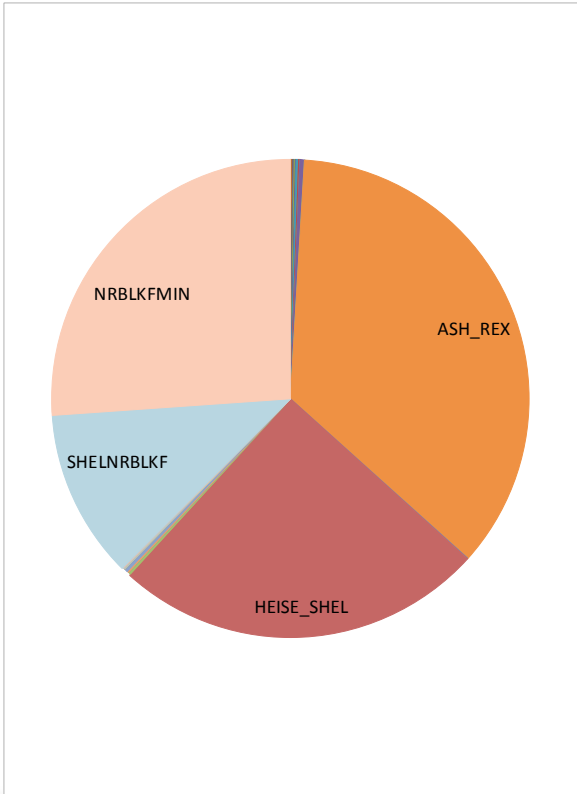

Legend
Covington_Weaver_Spgs
ESPAM2_MultiDrain
Drain Cond (Pred-Cal)/Cal
-0.322349 - -0.269149
-0.269148 - -0.193979
-0.193978 - -0.110959
-0.110958 - -0.055567
-0.055566 - -0.024998
-0.024997 - -0.010152
-0.010151 - -0.001693
-0.001692 - 0.009705
0.009706 - 0.042076
0.042077 - 0.073880
0.073881 - 0.169370
0.169371 - 0.269844
0.269845 - 0.472500
0.472501 - 0.762138
0.762139 - 1.762326
Malad Sp
ThreeSp
Rangen Sp
N F Hatch
N F Hatch
Thousand
Thousand
Sand Sp
Box Can
Briggs Sp
Niagara S
Crystal
Blue Lake
Devil's C
Devil's W

E120116A008 WD110 to nr Blackfoot-Minidoka

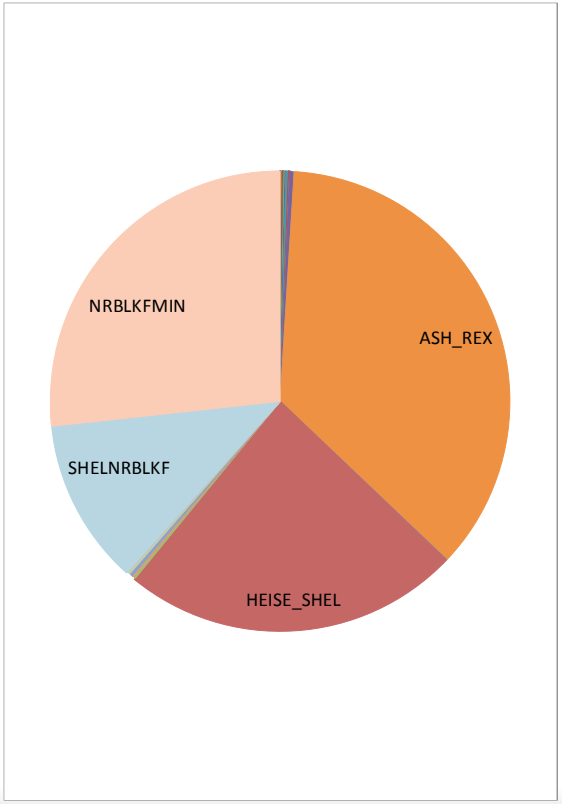
Calibrated



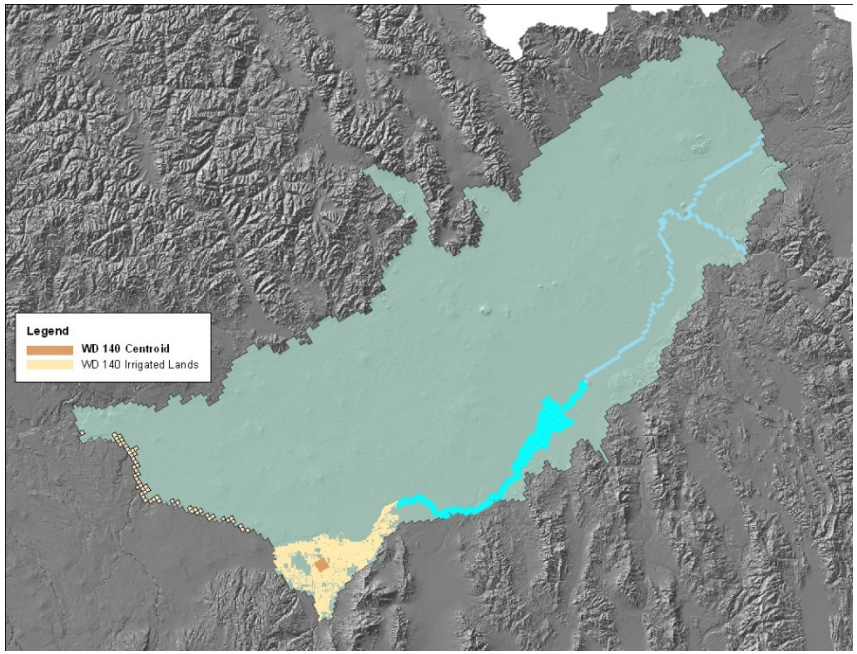
Minimized



Maximized

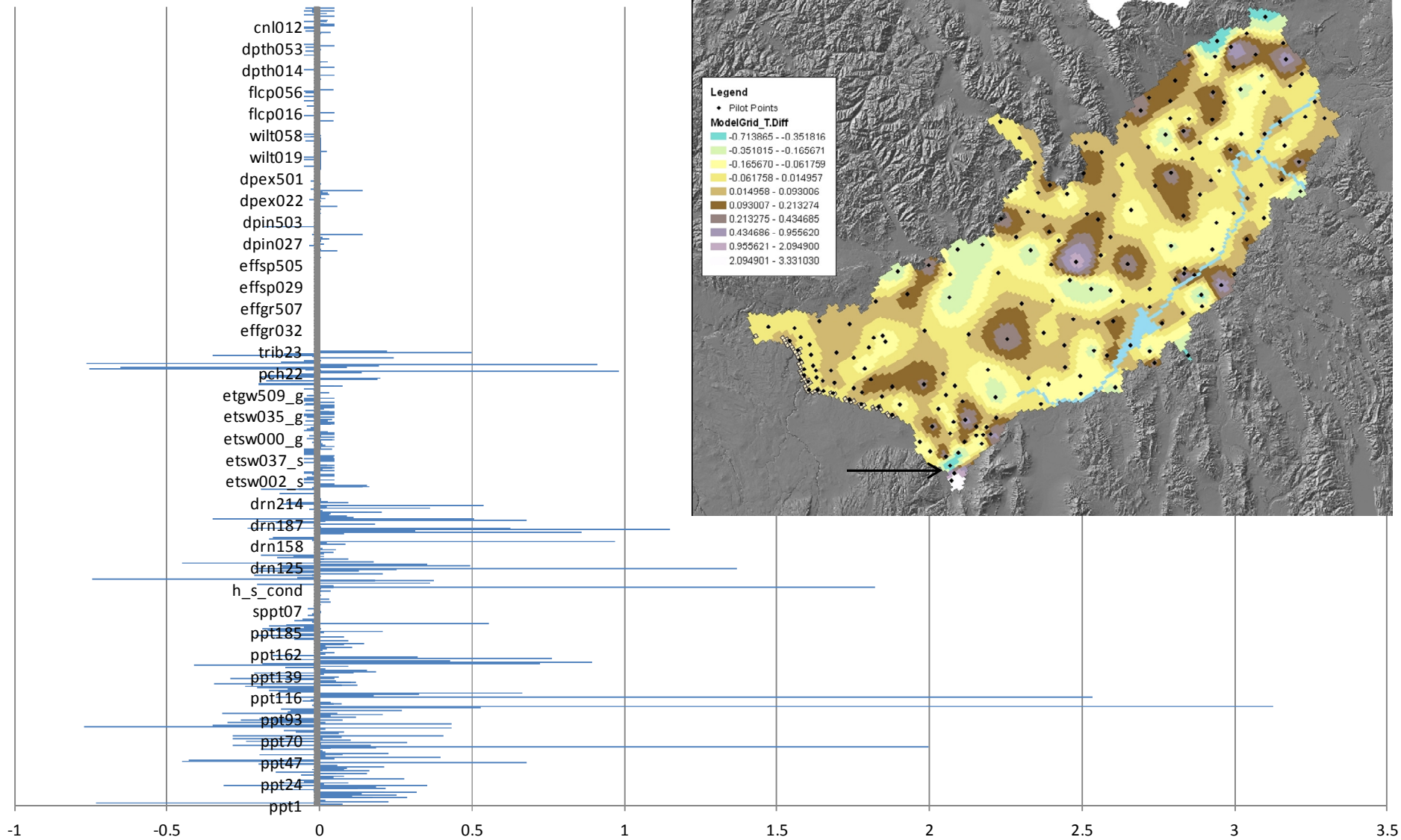


Predictive Uncertainty E120116A008



- WD140 on nr Blackfoot-Minidoka
- Impact of centroid for irrigated lands within WD140 on nr Blackfoot-Minidoka
- How tightly assumptions and calibration data constrain prediction
- Maximize = maximize the impact on nr Blackfoot-Minidoka
- Minimize = minimize the impact on nr Blackfoot-Minidoka

(Min-Cal)/Cal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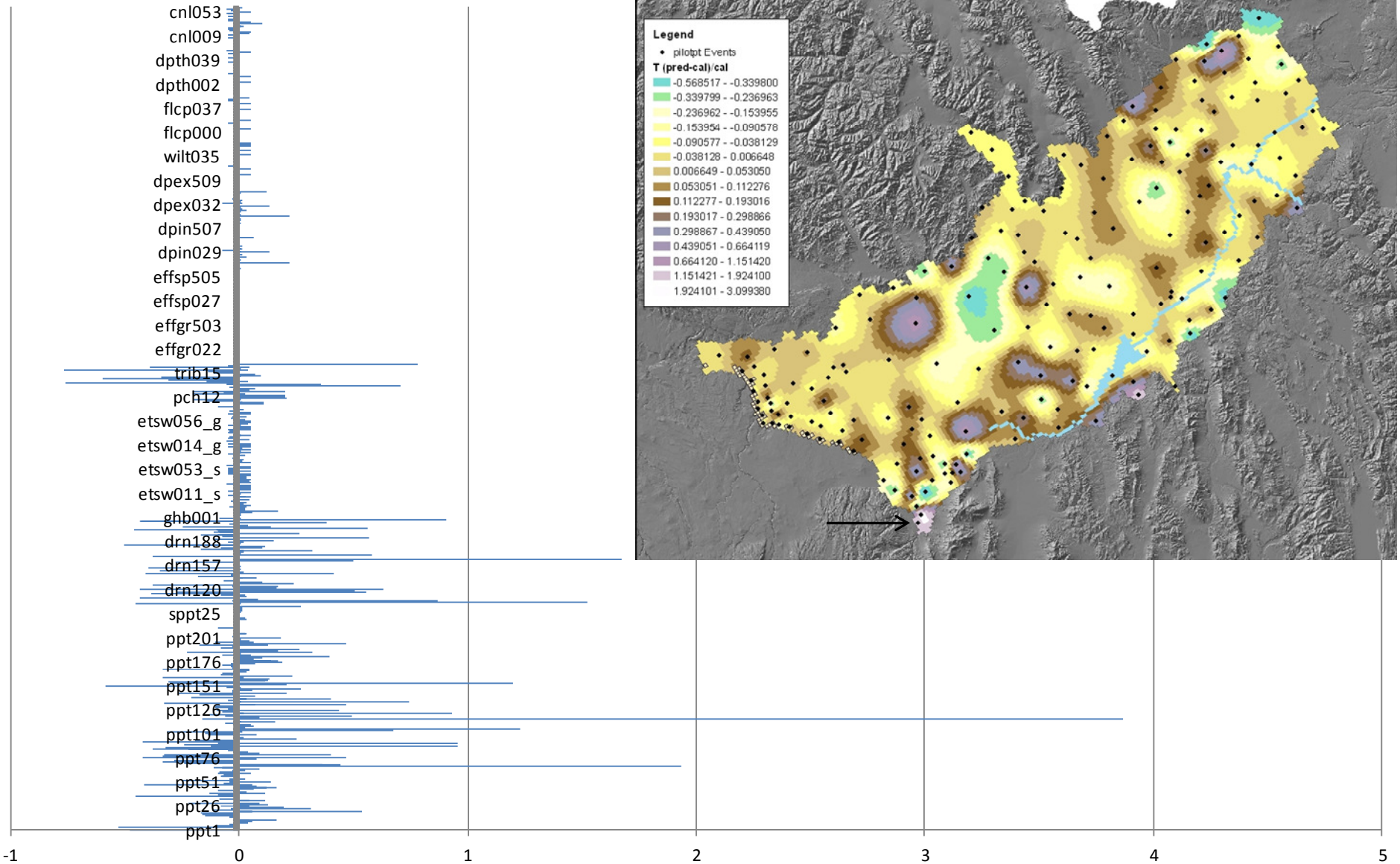
effgr507
effgr032
trib23
pch22
etgw509_g
etsw035_g
etsw000_g
etsw037_s
etsw002_s
drn214
drn187
drn158
drn125
h_s_cond
sppt07
ppt185
ppt162
ppt139
ppt116
ppt93
ppt70
ppt47
ppt24
ppt1
-1
-0.5
0
0.5
1
1.5
2
2.5
3
3.5
Legend
Pilot Points
ModelGrid_T.Diff
-0.713865 - -0.351816
-0.351815 - -0.165671
-0.165670 - -0.061759
-0.061758 - 0.014957
0.014958 - 0.093006
0.093007 - 0.213274
0.213275 - 0.434685
0.434686 - 0.955620
0.955621 - 2.094900
2.094901 - 3.331030

(Max-Cal)/Cal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flcp000
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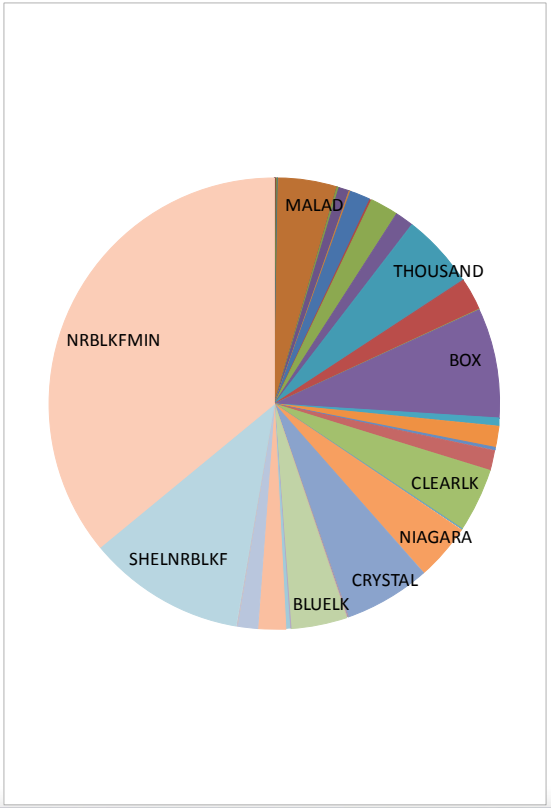
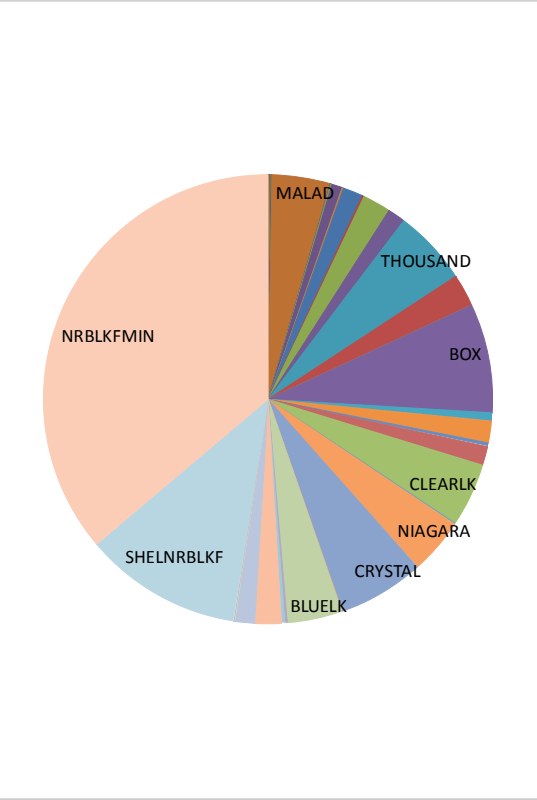
dpin507
dpin029
effsp505
effsp027
effgr503
effgr022
trib15
pch12
etsw056_g
etsw014_g
etsw053_s
etsw011_s
ghb001
drn188
drn157
drn120
sppt25
ppt201
ppt176
ppt151
ppt126
ppt101
ppt76
ppt51
ppt26
ppt1
-1
0
1
2
3
4
5
Legend
pilotpt Events
T (pred-cal)/cal
-0.568517 - -0.339800
-0.339799 - -0.236963
-0.236962 - -0.153955
-0.153954 - -0.090578
-0.090577 - -0.038129
-0.038128 - 0.006648
0.006649 - 0.053050
0.053051 - 0.112276
0.112277 - 0.193016
0.193017 - 0.298866
0.298867 - 0.439050
0.439051 - 0.664119
0.664120 - 1.151420
1.151421 - 1.924100
1.924101 - 3.099380

E120116A008 WD140 to nr Blackfoot-Minidoka

Calibrated



Minimized



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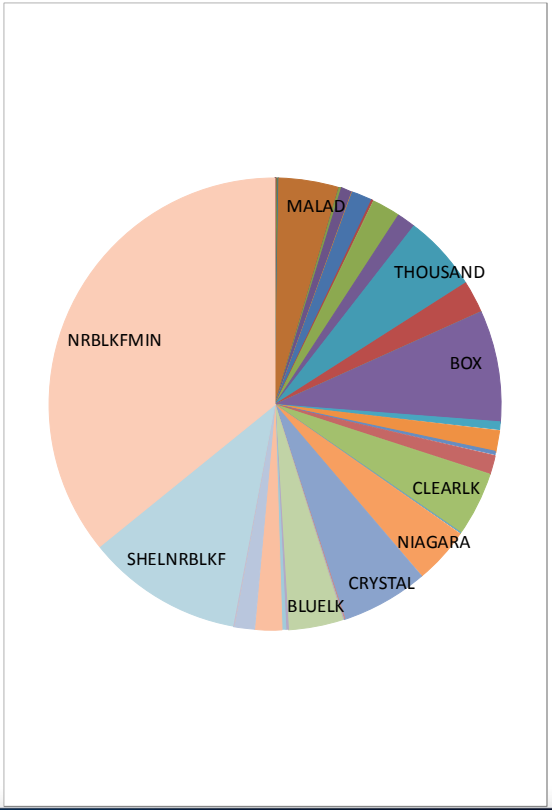
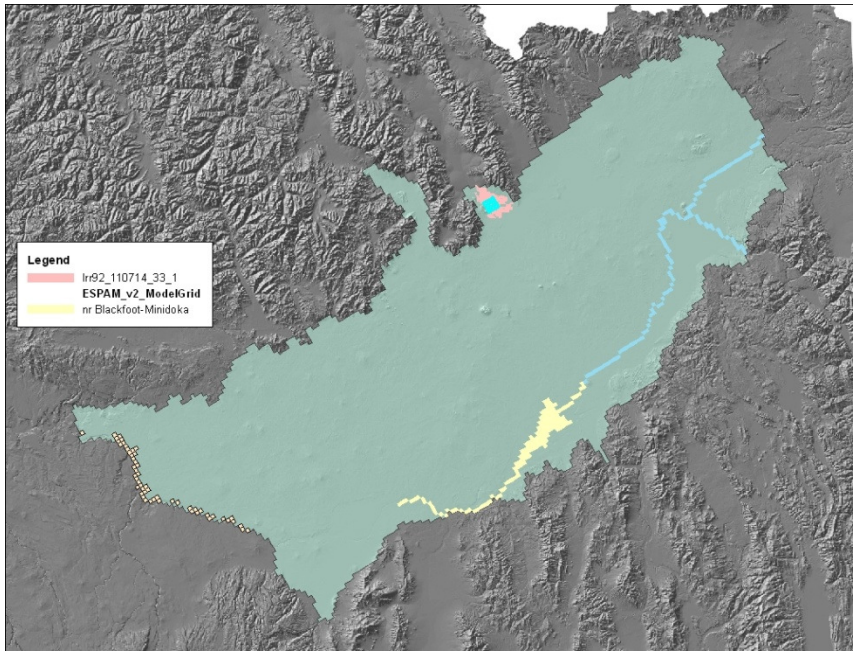
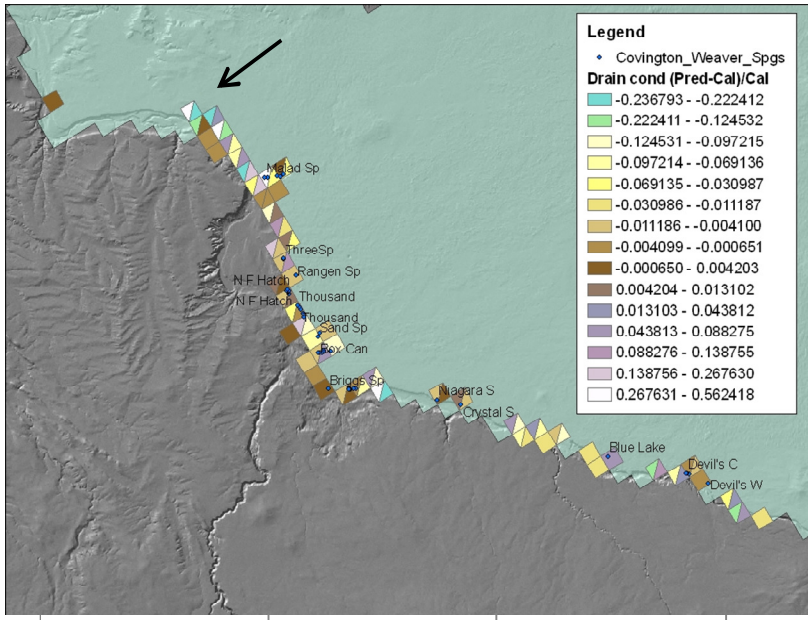


Predictive Uncertainty E120116A008

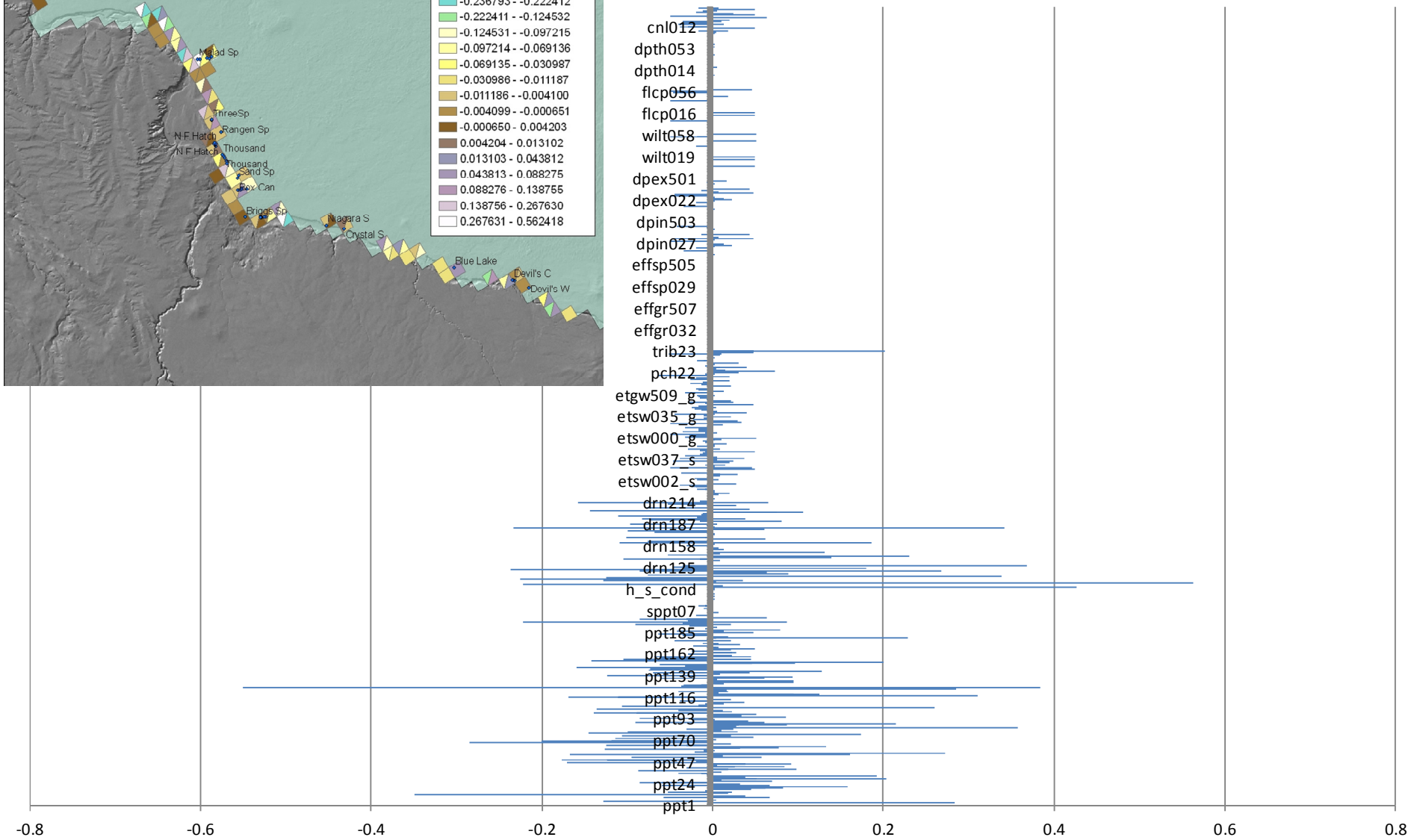


- WD33 on nr Blackfoot-Minidoka
- Impact of centroid for irrigated lands within WD33 on nr Blackfoot-Minidoka
- How tightly assumptions and calibration data constrain prediction
- Maximize = maximize the impact on nr Blackfoot-Minidoka
- Minimize = minimize the impact on nr Blackfoot-Minidoka

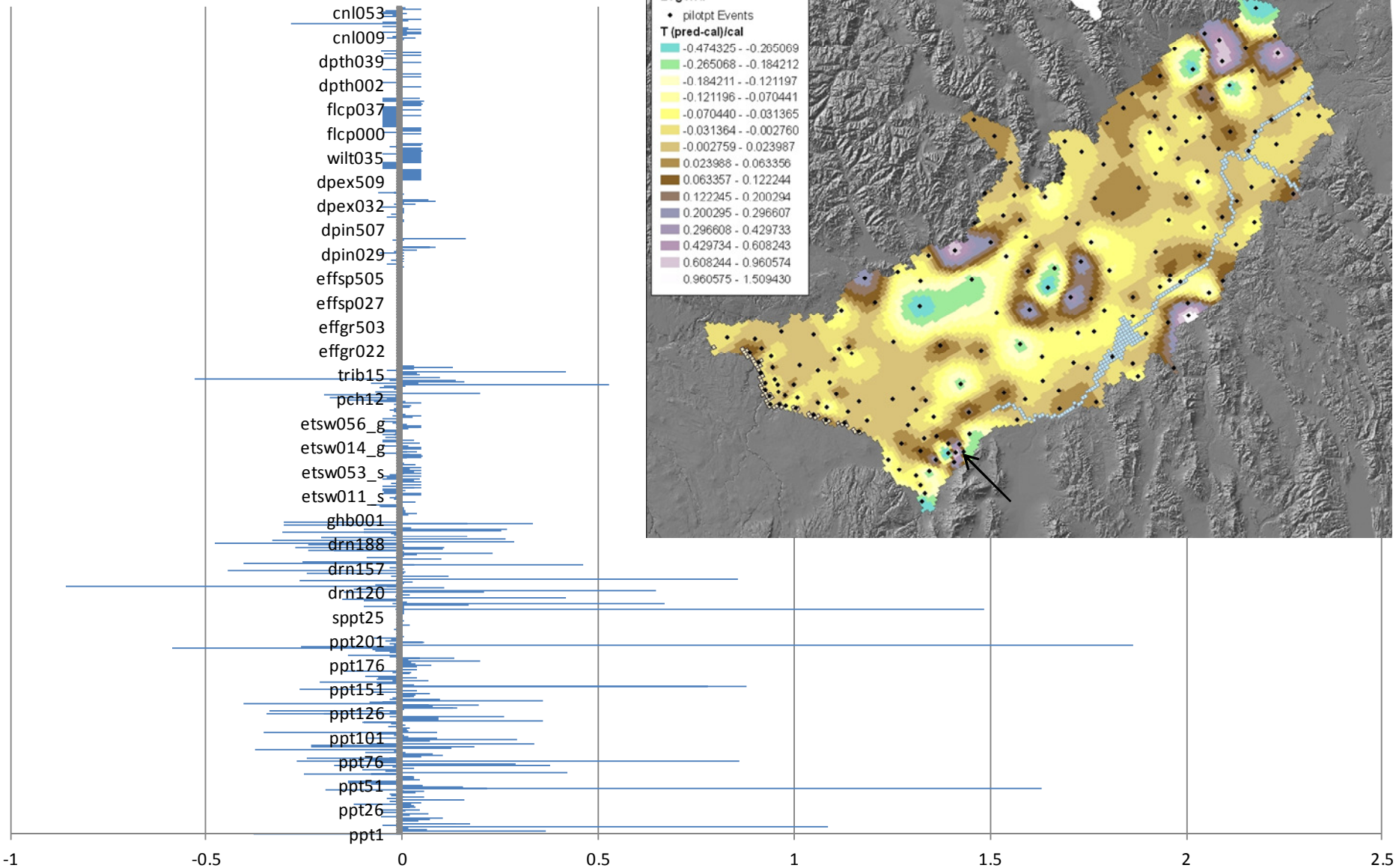
IDAHO Department of Water Resources



(Min-Cal)/Cal



(Max-Cal)/Cal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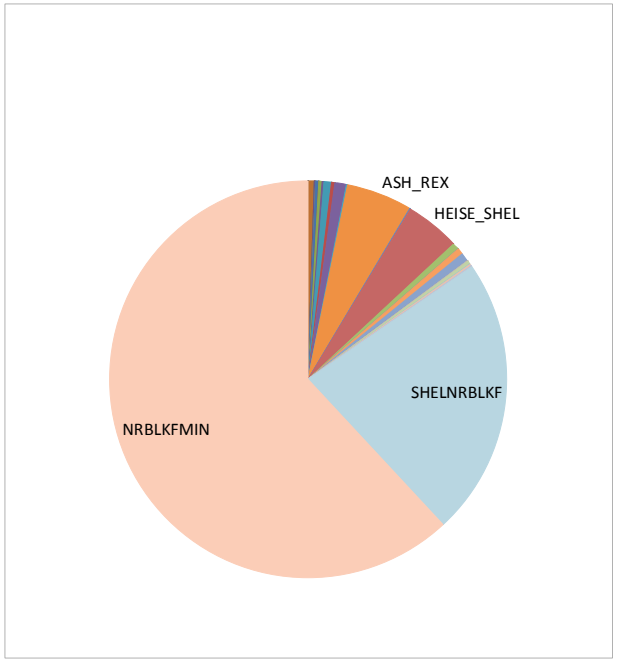
drn188
drn157
drn120
sppt25
ppt201
ppt176
ppt151
ppt126
ppt101
ppt76
ppt51
ppt26
ppt1
-1
-0.5
0
0.5
1
1.5
2
2.5

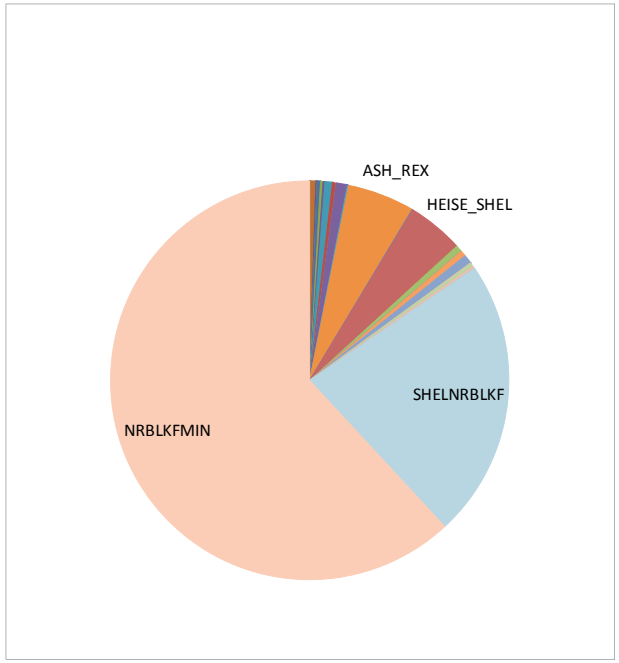
Legend
pilotpt Events
T (pred-cal)/cal
-0.474325 - -0.265069
-0.265068 - -0.184212
-0.184211 - -0.121197
-0.121196 - -0.070441
-0.070440 - -0.031365
-0.031364 - -0.002760
-0.002759 - 0.023987
0.023988 - 0.063356
0.063357 - 0.122244
0.122245 - 0.200294
0.200295 - 0.296607
0.296608 - 0.429733
0.429734 - 0.608243
0.608244 - 0.960574
0.960575 - 1.509430

E120116A008 WD33 to nr Blackfoot-Minidoka

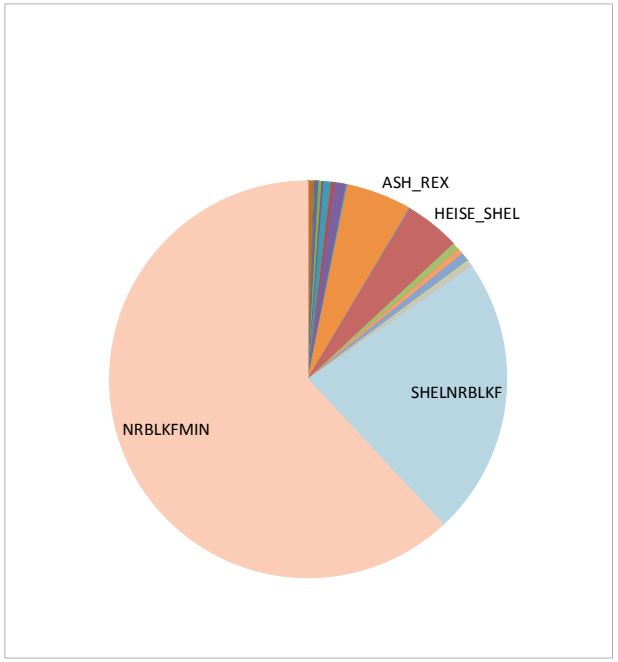
Calibrated



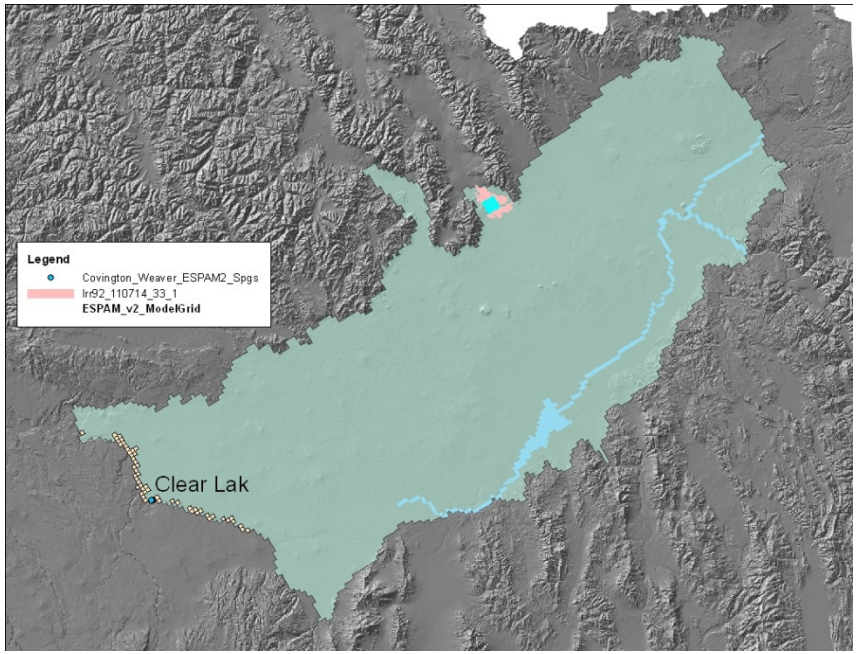
Minimized



Maximized



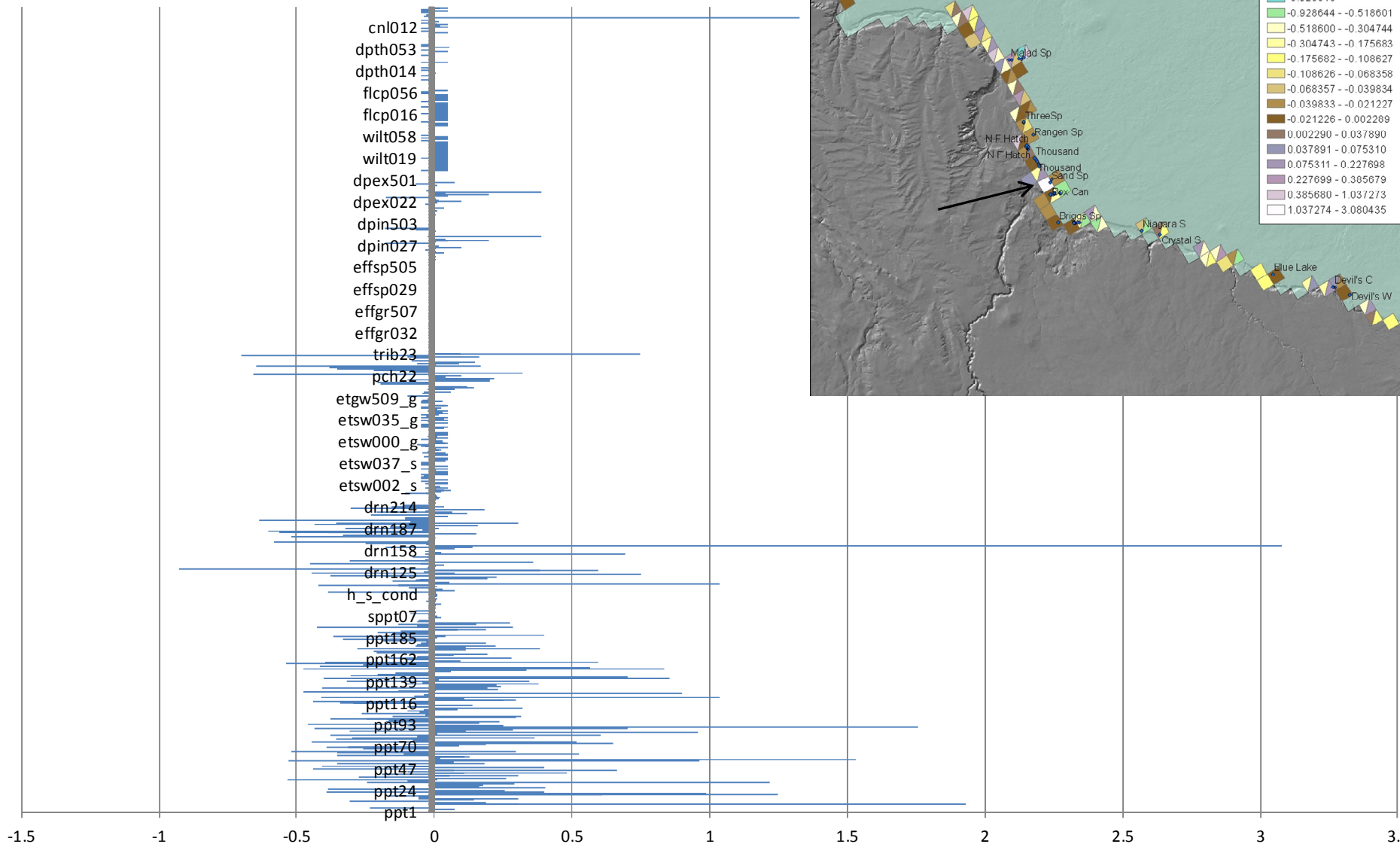
Predictive Uncertainty E120116A008

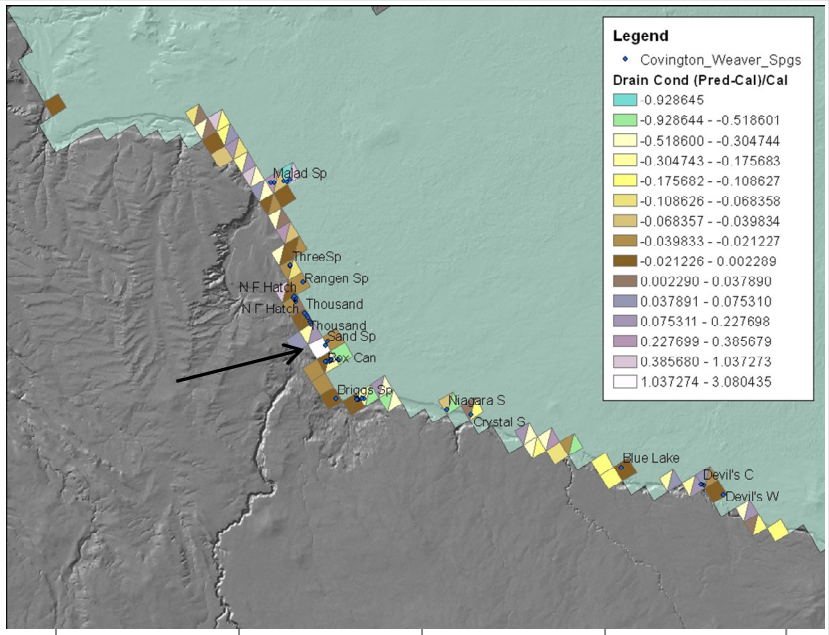


- WD33 on Clear Lakes
- Impact of centroid for irrigated lands within WD33 on Clear Lakes
- How tightly assumptions and calibration data constrain prediction
- Maximize = maximize the impact on Clear Lakes
- Minimize = minimize the impact on Clear Lakes

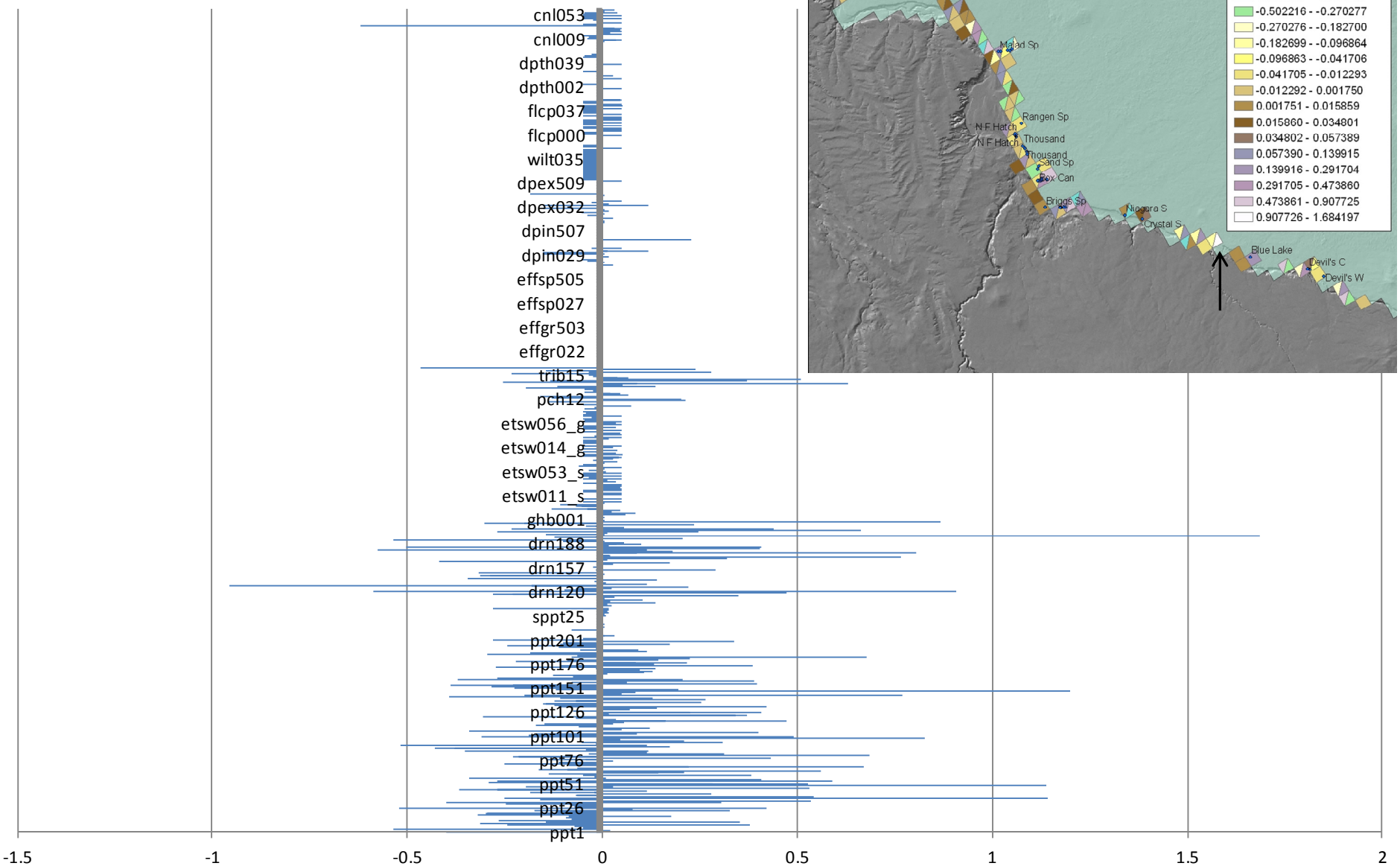
IDAHO Department of Water Resources

(Min-Cal)/Cal





(Max-Cal)/Cal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effgr503
effgr022
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pch12
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etsw014_g
etsw053_s
etsw011_s
ghb001
drn188
drn157
drn120
sppt25
ppt201
ppt176
ppt151
ppt126
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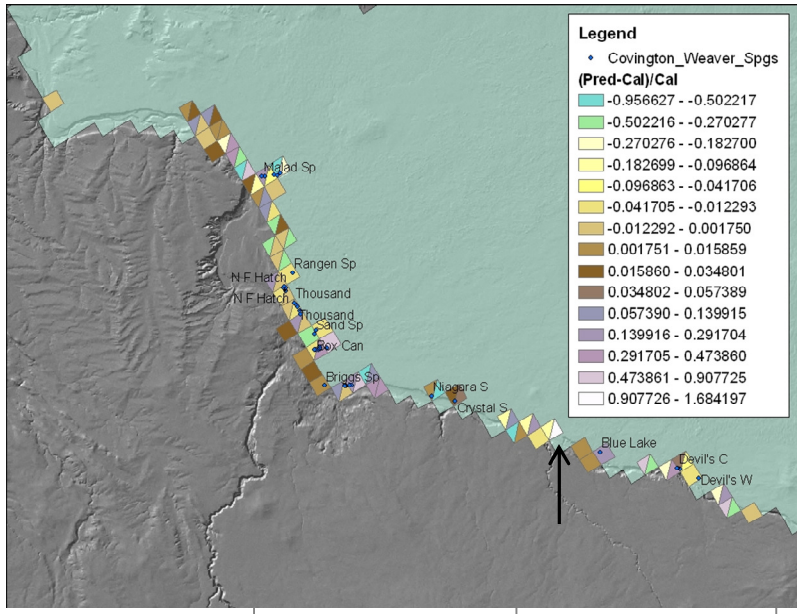
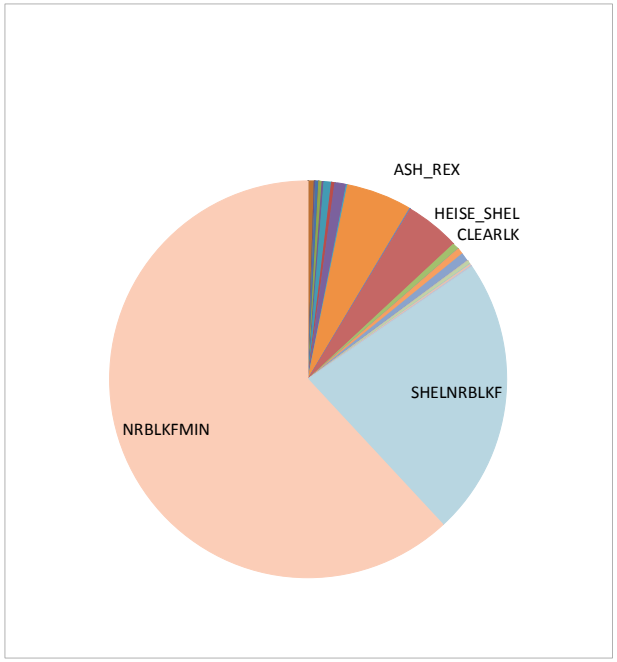
1.5
2

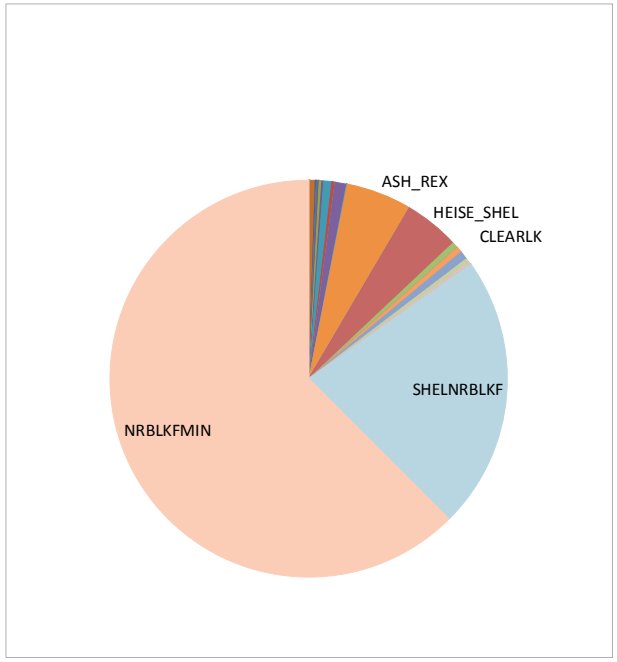

Legend
Covington_Weaver_Spgs
(Pred-Cal)/Cal
-0.956627 - -0.502217
-0.502216 - -0.270277
-0.270276 - -0.182700
-0.182699 - -0.096864
-0.096863 - -0.041706
-0.041705 - -0.012293
-0.012292 - 0.001750
0.001751 - 0.015859
0.015860 - 0.034801
0.034802 - 0.057389
0.057390 - 0.139915
0.139916 - 0.291704
0.291705 - 0.473860
0.473861 - 0.907725
0.907726 - 1.684197
Malad Sp
Rangen Sp
N F Hatch
N F Hatch
Thousand
Thousand
Sand Sp
Box Can
Briggs Sp
Niagara S
Crystal S
Blue Lake
Devil's C
Devil's W

E120116A008 WD33 to Clear Lakes

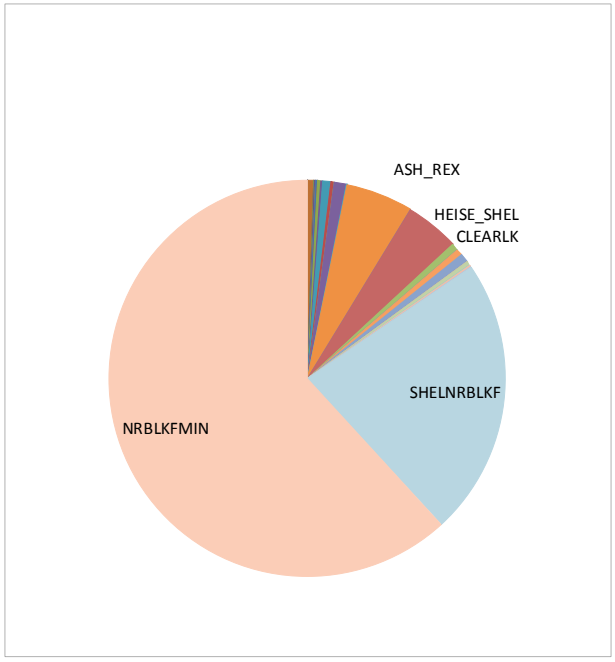
Calibrated



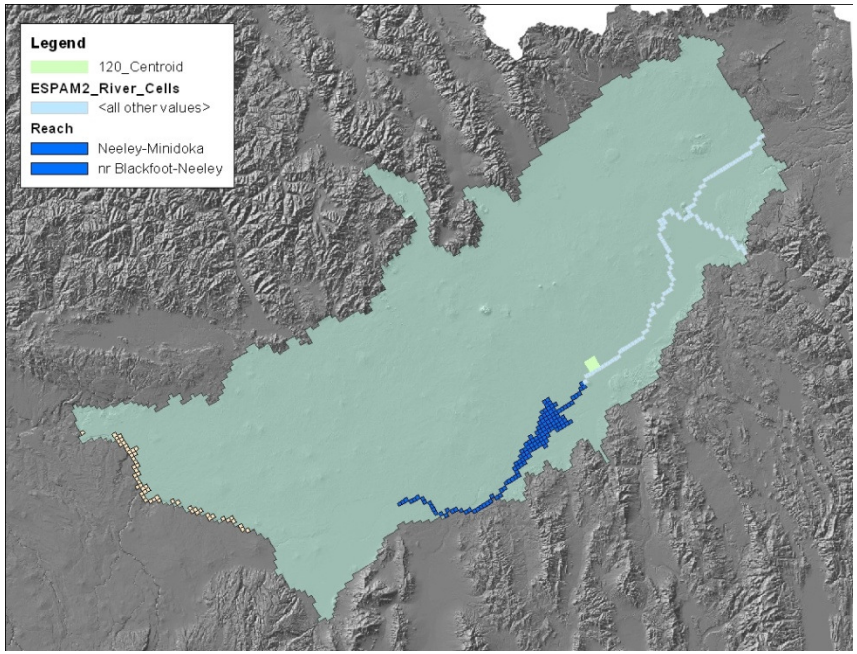
Minimized



Maximized

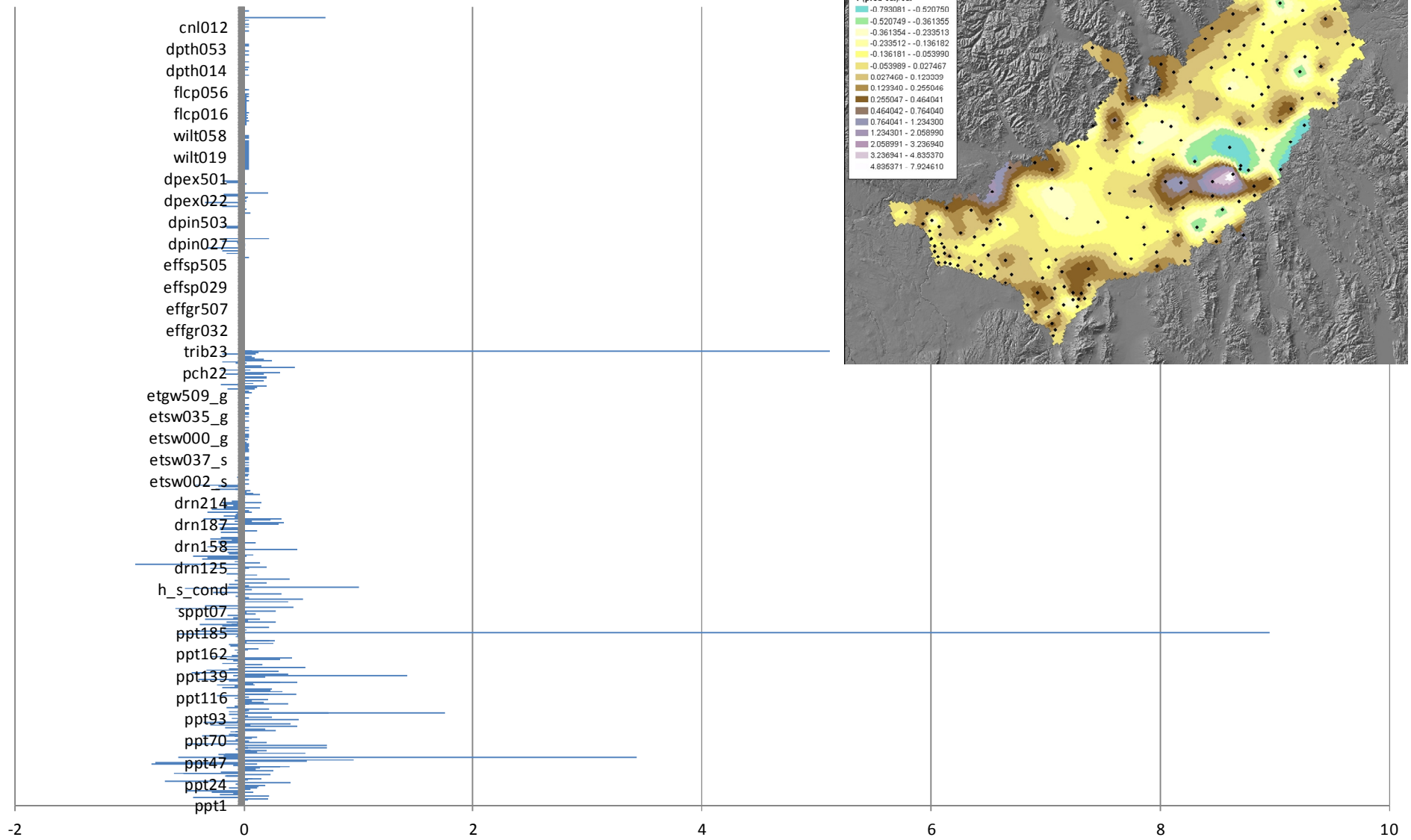


Predictive Uncertainty E120116A008



- WD120 on nr Blackfoot-Minidoka
- Impact of centroid for irrigated lands within WD120 on nr Blackfoot-Minidoka
- How tightly assumptions and calibration data constrain prediction
- Maximize = maximize the impact on nr Blackfoot-Minidoka
- Minimize = minimize the impact on nr Blackfoot-Minidoka

(Min-Cal)/Cal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drn214
drn187
drn158
drn125
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ppt139
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ppt93
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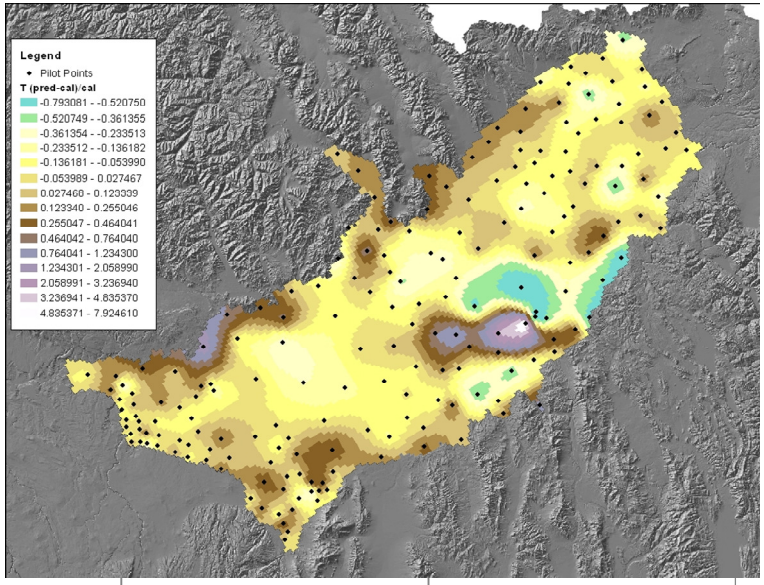
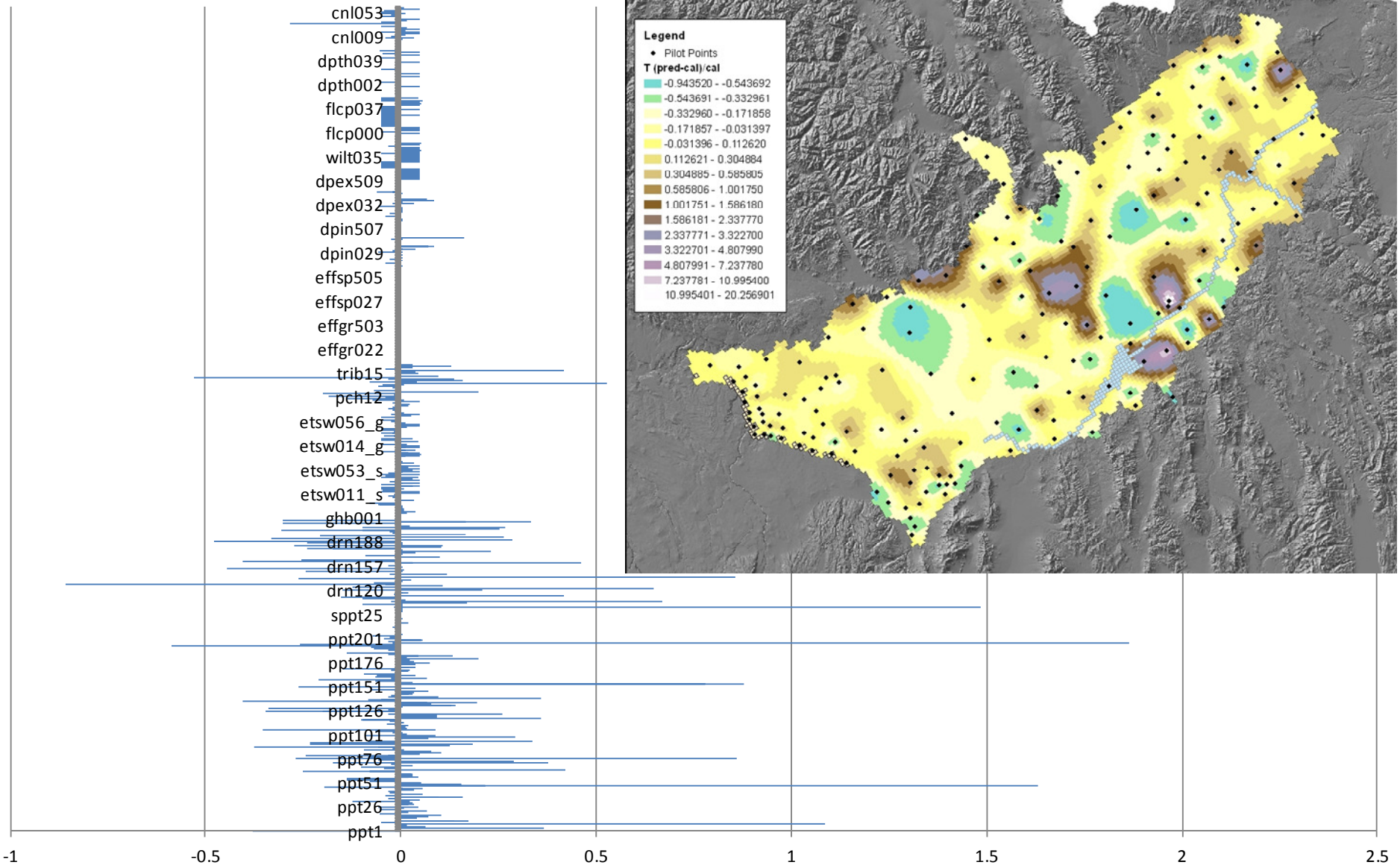
2
4
6
8
10

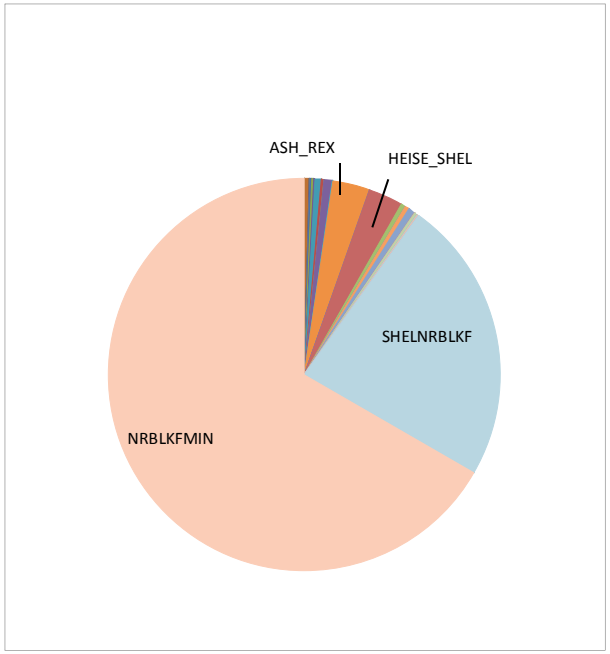

Legend
Pilot Points
T (pred-cal)/cal
-0.793081 - -0.520750
-0.520749 - -0.361355
-0.361354 - -0.233513
-0.233512 - -0.136182
-0.136181 - -0.053990
-0.053989 - 0.027467
0.027468 - 0.123339
0.123340 - 0.255046
0.255047 - 0.464041
0.464042 - 0.764040
0.764041 - 1.234300
1.234301 - 2.058990
2.058991 - 3.236940
3.236941 - 4.835370
4.835371 - 7.924610

(Max-Cal)/Cal

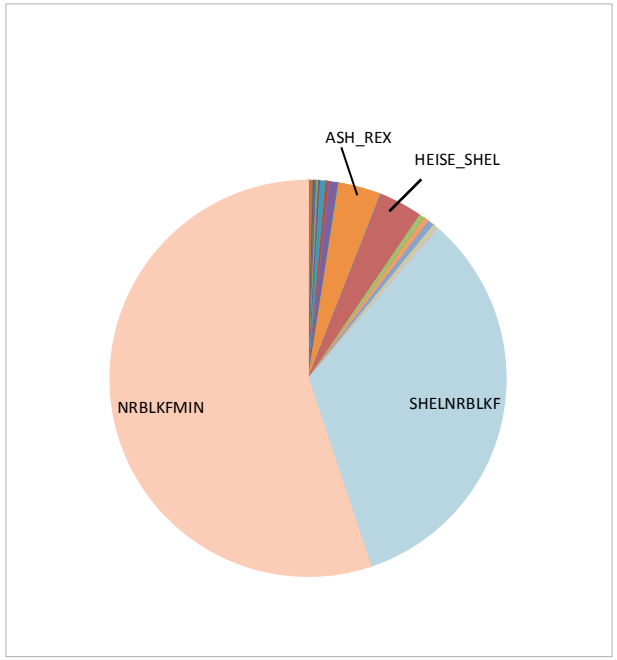

cnl053
cnl009
dpth039
dpth002
flcp037
flcp000
wilt035
dpex509
dpex032
dpin507
dpin029
effsp505
effsp027
effgr503
effgr022
trib15
pch12
etsw056_g
etsw014_g
etsw053_s
etsw011_s
ghb001
drn188
drn157
drn120
sppt25
ppt201
ppt176
ppt151
ppt126
ppt101
ppt76
ppt51
ppt26
ppt1
-1
-0.5
0
0.5
1
1.5
2
2.5
Legend
Pilot Points
T (pred-cal)/cal
-0.943520 - -0.543692
-0.543691 - -0.332961
-0.332960 - -0.171858
-0.171857 - -0.031397
-0.031396 - 0.112620
0.112621 - 0.304884
0.304885 - 0.585805
0.585806 - 1.001750
1.001751 - 1.586180
1.586181 - 2.337770
2.337771 - 3.322700
3.322701 - 4.807990
4.807991 - 7.237780
7.237781 - 10.995400
10.995401 - 20.256901

E120116A008 WD120 to nr Blackfoot-Minidoka

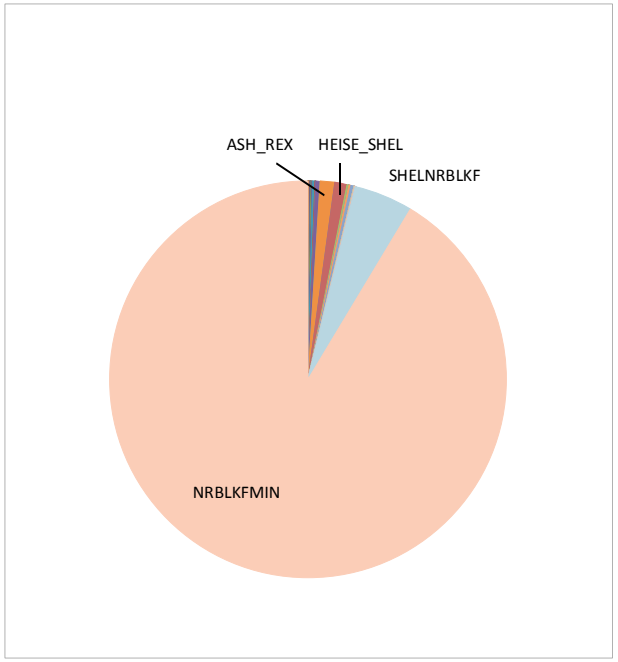
Calibrated



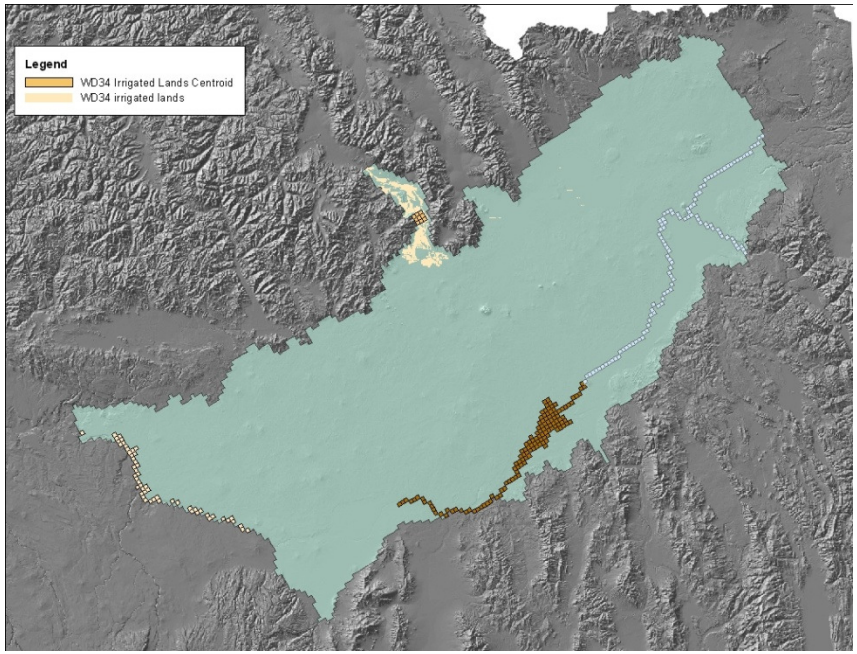
Minimized



Maximized

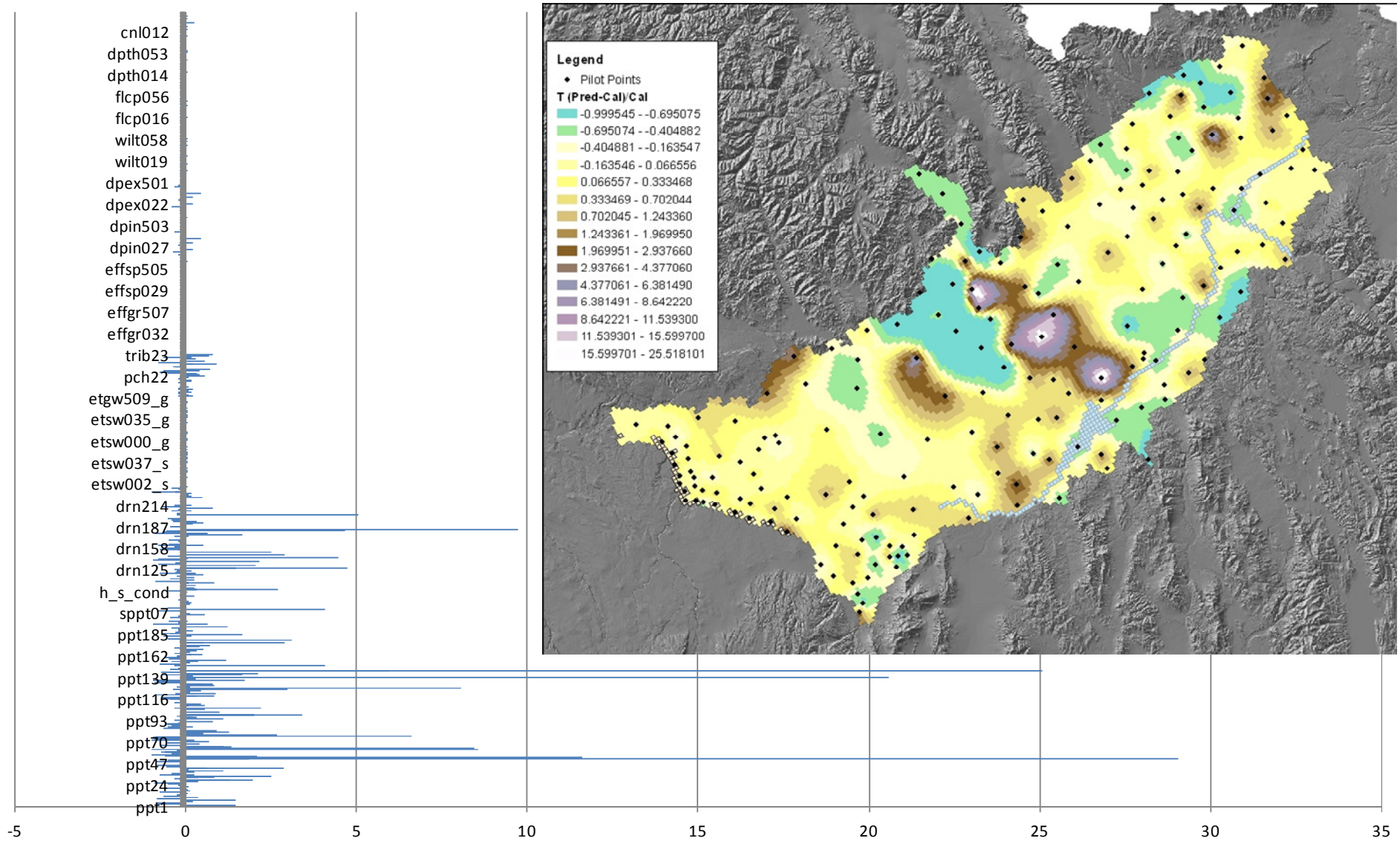


Predictive Uncertainty E120116A008



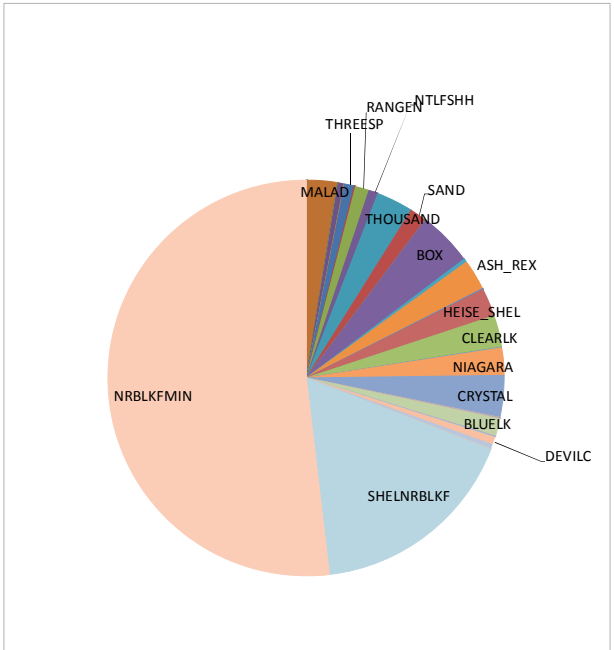
- WD34 on nr Blackfoot-Minidoka
- Impact of centroid for irrigated lands within WD34on nr Blackfoot-Minidoka
- How tightly assumptions and calibration data constrain prediction
- Maximize = maximize the impact on nr Blackfoot-Minidoka
- Minimize = minimize the impact on nr Blackfoot-Minidoka

(Min-Cal)/Cal


cnl012
dpth053
dpth014
flcp056
flcp016
wilt058
wilt019
dpex501
dpex022
dpin503
dpin027
effsp505
effsp029
effgr507
effgr032
trib23
pch22
etgw509_g
etsw035_g
etsw000_g
etsw037_s
etsw002_s
drn214
drn187
drn158
drn125
h_s_cond
sppt07
ppt185
ppt162
ppt139
ppt116
ppt93
ppt70
ppt47
ppt24
ppt1
-5
0
5
10
15
20
25
30
35
Legend
Pilot Points
T (Pred-Cal)/Cal
-0.999545 - -0.695075
-0.695074 - -0.404882
-0.404881 - -0.163547
-0.163546 - 0.066556
0.066557 - 0.333468
0.333469 - 0.702044
0.702045 - 1.243360
1.243361 - 1.969950
1.969951 - 2.937660
2.937661 - 4.377060
4.377061 - 6.381490
6.381491 - 8.642220
8.642221 - 11.539300
11.539301 - 15.599700
15.599701 - 25.518101

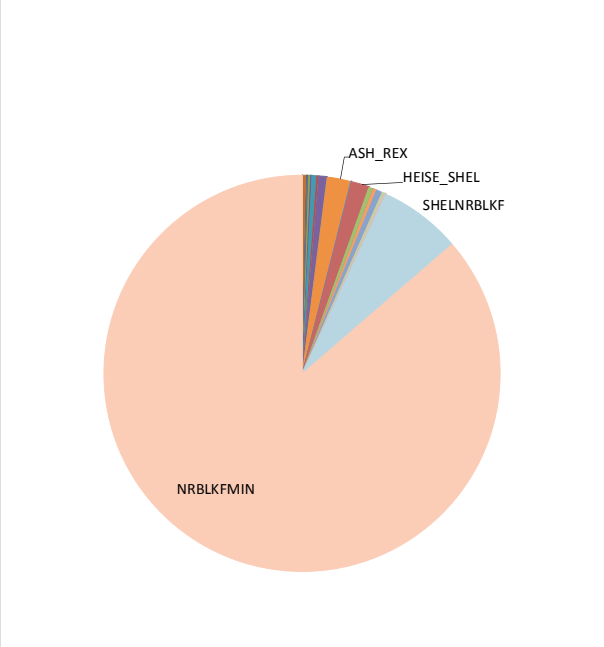
E120116A008 WD34 to nr Blackfoot-Minidoka

Calibrated



Minimized

Maximized



END

Table from 16 April 2012 Meeting

Centroid	Reach	Calibrated Impact	Maximized Impact	Minimized Impact
WD110	Clear Lakes	0.17%	0.17%	0.16%
WD120	Clear Lakes	0.45%	0.93%	0.39%
WD120	nr Blackfoot-Minidoka	66.52%	91.33%	55.02%
WD130	Clear Lakes	7.11%	7.36%	6.93%
WD130	nr Blackfoot-Minidoka	21.56%	21.67%	14.93%
WD130	Ashton-Rexburg	0.94%	0.96%	0.94%
WD34	Clear Lakes	2.73%	3.39%	0.44%
WD34	nr Blackfoot-Minidoka	68.19%	86.16%	[illegible]0%

Analysis rerun with E120116A008 are in blue