E120116A008 1900 Validation

Allan Wylie IDWR

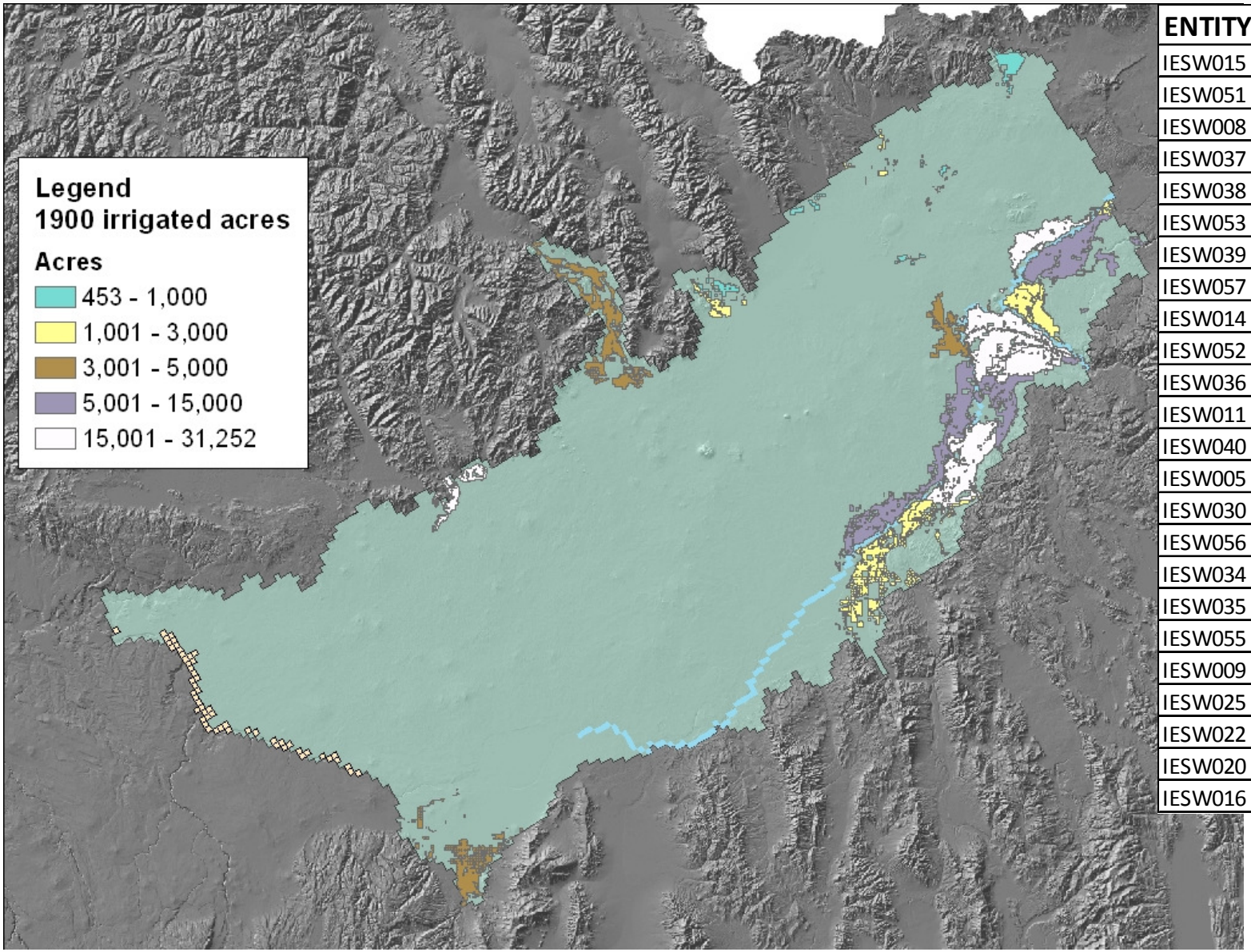
1900 Validation

- Sources of Information
  - Russell 1902, USGS Bulletin 199
  - Spring discharge
    - Most from Biennial Report of the State Engineer 1901-1902
      - Measured or estimated by J.D. Stannard, April 15-28, 1902
  - Irrigated acres by canal, crop mix
    - Biennial Report of the State Engineer 1901-1902
    - 233,127 surface water irrigated acres on ESPA
  - Precipitation, Mean Daily Max Temp, Mean Daily Min Temp, Dew Point
    - PRISM (Oregon State University)

1900 Validation

- NIR, TRB, PCH, and ETI
  - Precipitation average for ESPA for 1895-1902 similar to average of 1988-1992
  - Average of 1988-1992
- ET adjustment factors 0.7 to account for lower crop yields.
- ESPAM2 river file converted to streamflow-routing file to allow model to calculate stage
  - Average inflow for Henry's Fork is average of 1988-1992
  - Average inflow for South Fork is average of 1988-1992 for unregulated flow at Heise

IDAHO Department of Water Resources

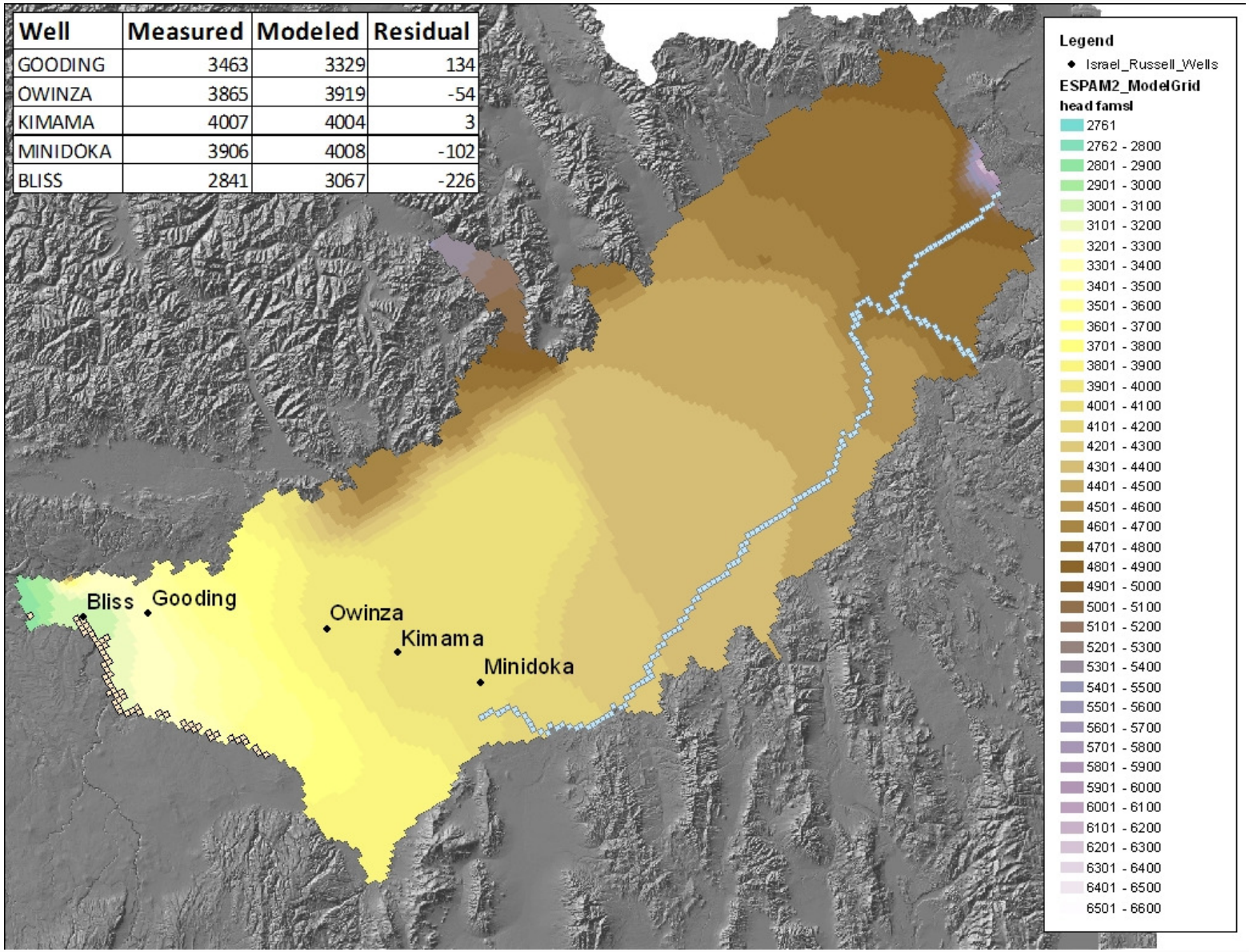


ENTITY	Name	Acres
IESW015	Dewey	453
IESW051	Dubois	800
IESW008	BlaineCo	942
IESW037	Reno	1000
IESW038	Rexburg	1119
IESW053	Howe	1557
IESW039	Chester	1577
IESW057	Blk_Chub	1812
IESW014	Blckfoot	2265
IESW052	Small	2500
IESW036	Liberty	2718
IESW011	ButteMrk	3624
IESW040	Oakley	4000
IESW005	BigLost	5000
IESW030	NewSwedn	12323
IESW056	Sugrcity	13664
IESW034	Peoples	13773
IESW035	Progress	14498
IESW055	Labelle	16401
IESW009	Burgess	22925
IESW025	LitlWood	25000
IESW022	Idaho	25372
IESW020	Harrison	28543
IESW016	Egin	31252

1900 Validation

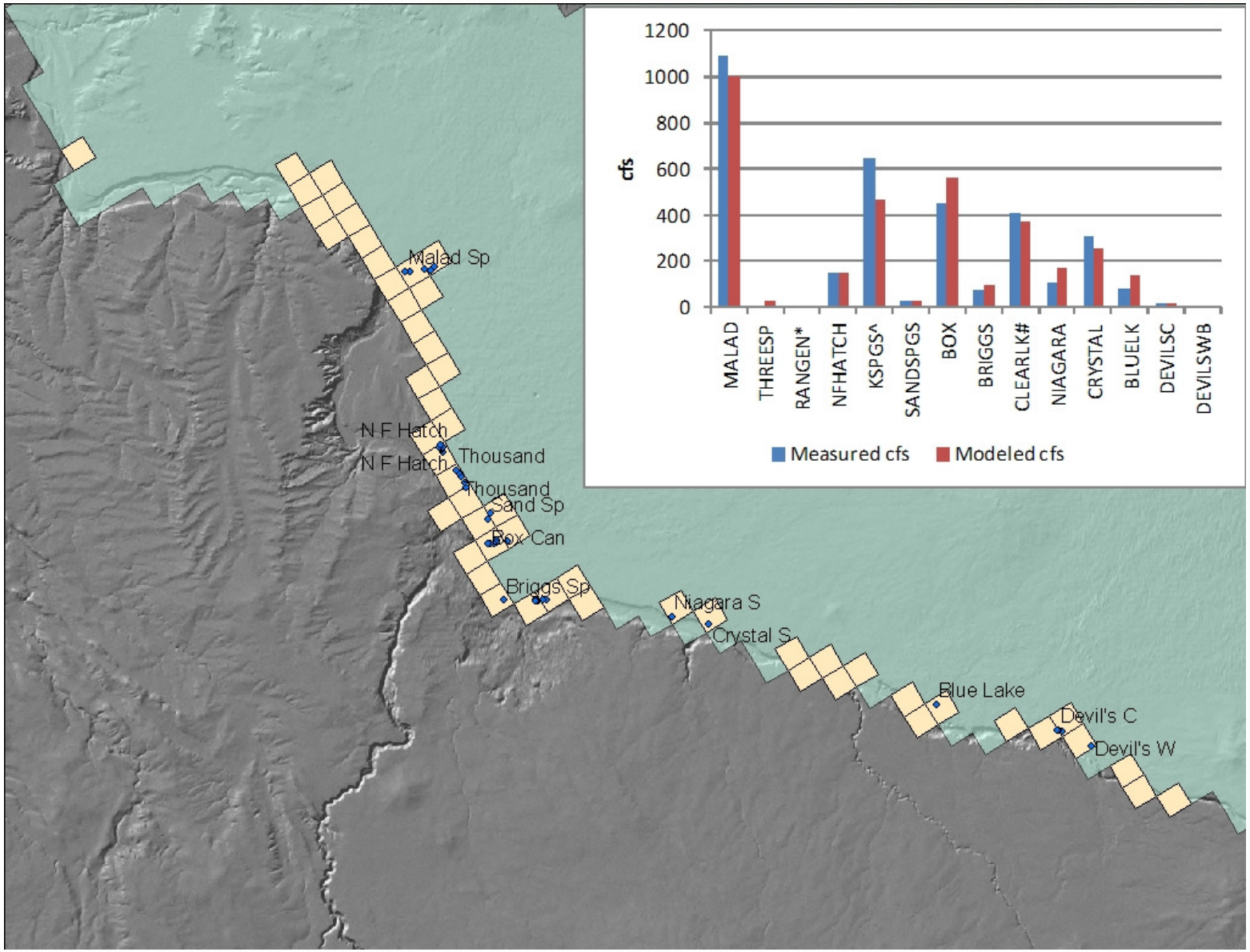
- Water levels from Russell (1902)
  - Most obtained from Oregon Short Line Railroad
  - Bliss water level is lower than adjacent spring elevations
    - Perhaps landslides have changed local hydrogeology
  - Gooding well not a railroad well
    - Don’t know when or where it was drilled

Well	Measured	Modeled	Residual
GOODING	3463	3329	134
OWINZA	3865	3919	-54
KIMAMA	4007	4004	3
MINIDOKA	3906	4008	-102
BLISS	2841	3067	-226



1900 Validation

- Springs data
  - Most from Biennial Report of the State Engineer 1901-1902
    - Measured or estimated by J.D. Stannard, April 15-28, 1902
  - Clear Lakes from Nace and others, 1958
    - Reference measurement taken in 1913
  - Thousand Springs
    - Russell, 1902
      - Estimate of 500 cfs
    - Stannard
      - Estimate of 797 cfs
    - Use average of Russell and Stannard = 648 cfs
  - Measurement for Billingsley Cr, but don't know where,
    - No observation for Rangen or Three Sp


Malad 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
1200
1000
800
600
400
200
0
cfs
MALAD
THREESP
RANGEN*
NFHATCH
KSPGS^
SANDSPGS
BOX
BRIGGS
CLEARLK#
NIAGARA
CRYSTAL
BLUELK
DEVILSC
DEVILSWB
Measured cfs
Modeled cfs

Spring	Measured cfs	Modeled cfs	Residual
MALAD	1090	1003.11	86.89
THREESP		27.86	
RANGEN*		0.00	
NFHATCH	147.4	151.66	-4.26
KSPGS^	648.5	467.59	180.91
SANDSPGS	28.5	23.23	5.27
BOX	451.5	563.38	-111.88
BRIGGS	77.2	99.11	-21.91
CLEARLK#	410	374.03	35.97
NIAGARA	106.8	172.23	-65.43
CRYSTAL	306.7	254.93	51.77
BLUELK	83.2	144.03	-60.83
DEVILSC	21.5	22.01	-0.51
DEVILSWB	1.15	0.00	1.15
no measurements			
estimates			
better targets			
*elevation of Rangen 3138, watertable in validation 3136			
# Nace and others 1958 pg 34 (measurement in 1913)			
^ Average of Russell 1902 pg 27 & State Engineers Report			
Sum of 1900 spring discharges			3,831
Modeled spring discharges Kimberly-King Hill			3,720

1900 Validation

- Model is not invalidated

END