

Appendix B – Selected Images

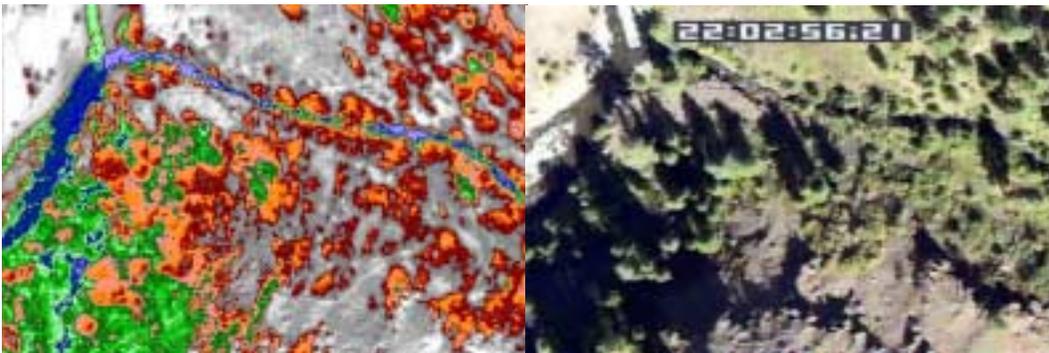
Lower Grande Ronde



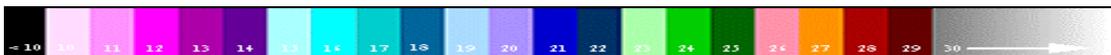
Appendix Figure B1 – Confluence of the Joseph Creek (24.5°C) on left and Grande Ronde River (23.9°C) on right (*frame: joe0027, 8/22/99*).



Appendix Figure B2 – Confluence of Cottonwood Creek (22.4°C) on left upstream of the bridge and Joseph Creek (24.0°C) flowing from top to bottom of the image (*frame: joe0237, 8/22/99*).

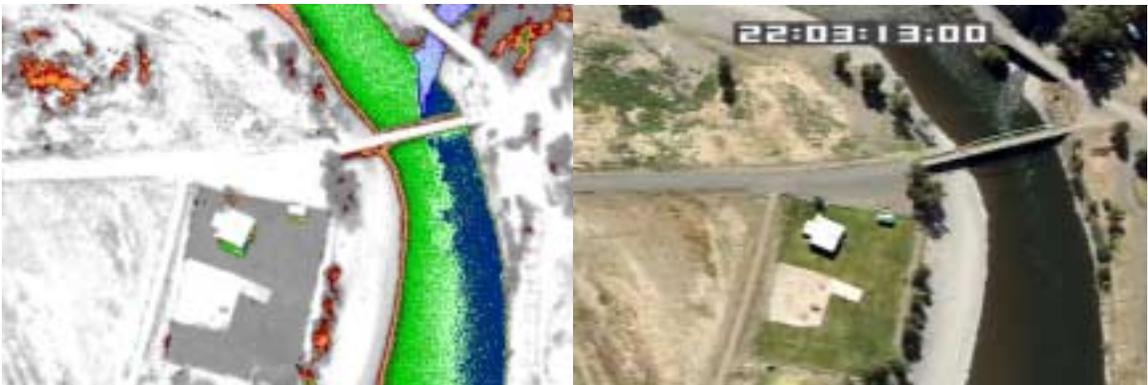


Appendix Figure B3 – Confluence of Swamp Creek (20.2°C) flowing from left to right and Joseph Creek (23.3°C) flow from top to bottom of image (*frame: joe1381, 8/22/99*).



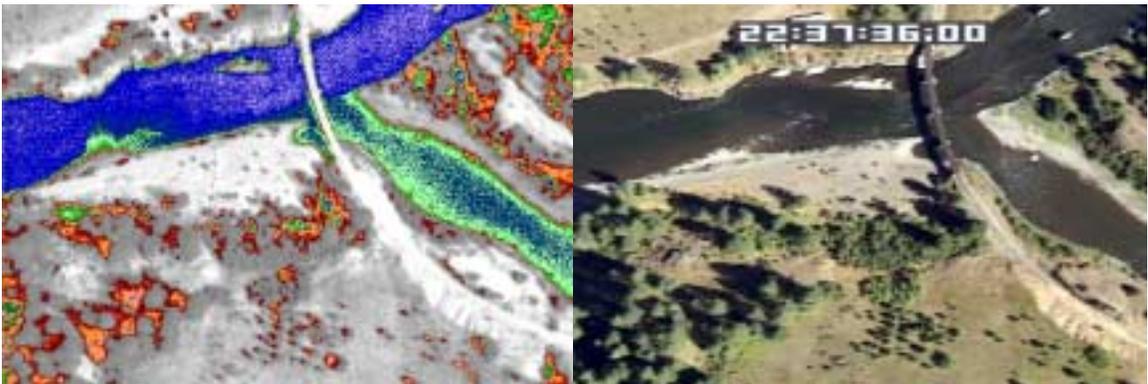


Appendix Figure B4 – Confluence of Chesnimnus Creek (26.2°C) flowing from top to bottom on left and Joseph Creek flowing from top to bottom on right (*shadowed in the day TV image*) (frame: joe1918, 8/22/99).



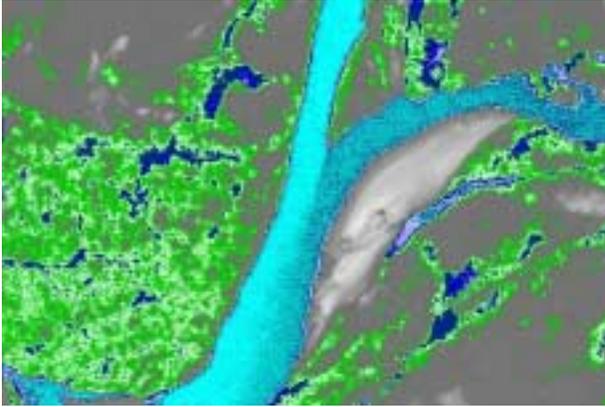
Appendix Figure B5 – Confluence of the Wenaha River (19.9°C) flowing in from the top left of the image and the Grande Ronde River (23.9°C) flowing from the top to the bottom of the image (frame: lgr0890 8/19/99).

Wallowa River Basin

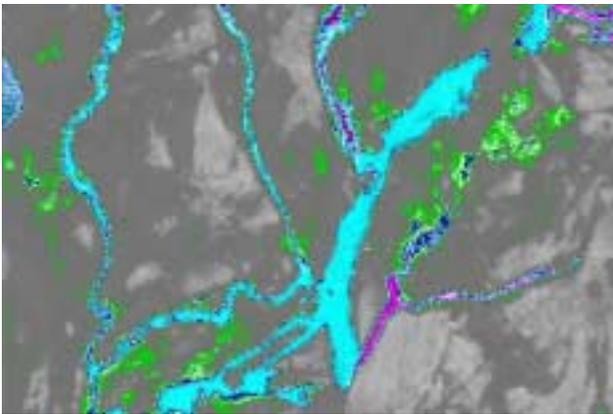


Appendix Figure B6 – Confluence of the Wallowa River (21.0°C) flowing in from the top left and the Grande Ronde River (frame: lgr1777, 8/19/99) flowing in from lower left side of the image.

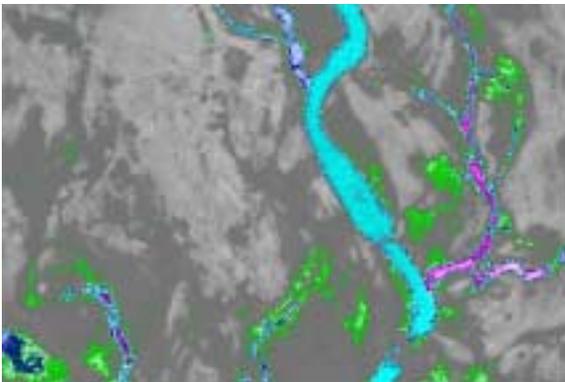




Appendix Figure B7 - Confluence of the Wallowa River (16.7°C) and the Lostine River (17.6°C)(frame 1276).

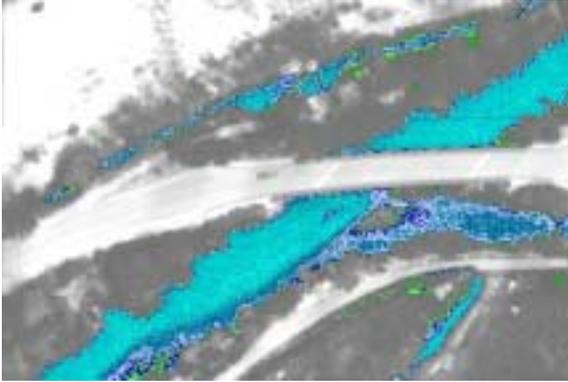


Appendix Figure B8 - Numerous cold off channel features in the Wallowa River (frame:2532) .

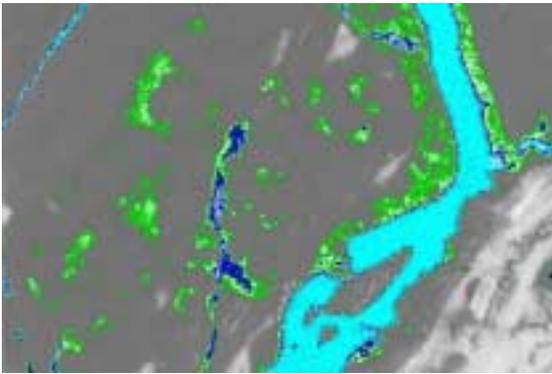


Appendix Figure B9 - More cold water inputs on the Upper Wallowa River. These inputs drive the main-stem temperatures in the upper river (frame 2537).

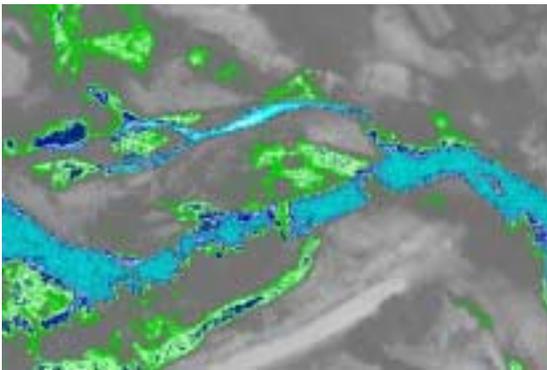




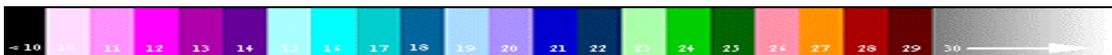
Appendix Figure B10 - Confluence of the Wallowa River (17.4°C) and Bear Creek (18.6°C) (frame 1094).



Appendix Figure B11 - Small, unnamed input off right bank of the Wallowa River. The spring/stream (15.1°C) is source of thermal cooling for the Wallowa River (16.4°C) (frame: wal1365).

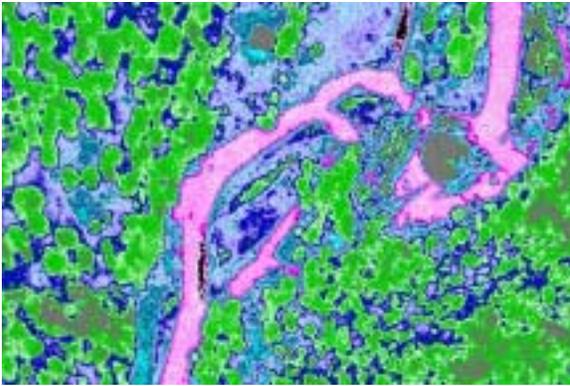


Appendix Figure B12 - Sub-surface connections on the Lostine River. Spring Temperature (15.4°C) and the Lostine River Temperature (17.4°C) (frame: lost0254).





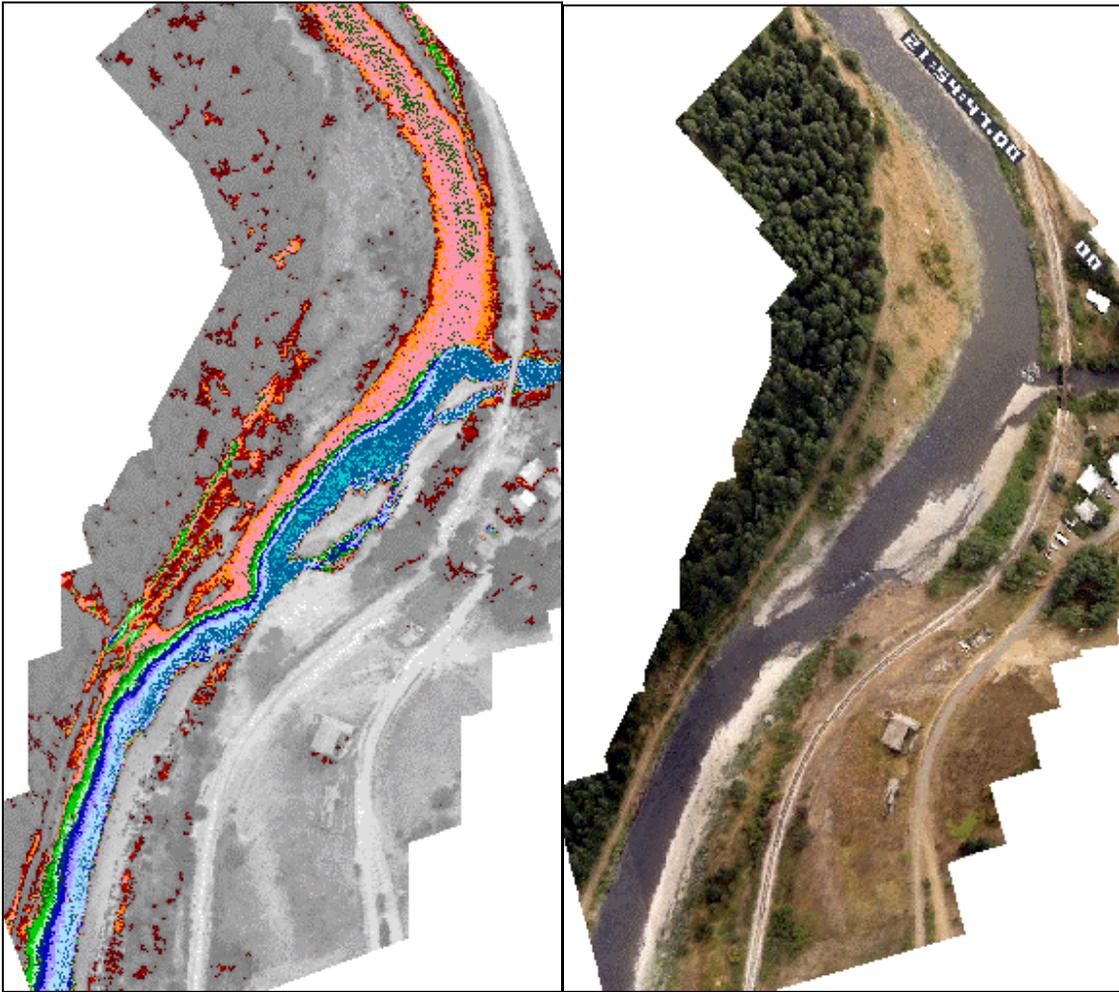
Appendix Figure B13 - The Lostine River (13.4°C) flows from the top to the bottom of the image. Bitter Creek (11.3°C) flows in on the RB. There is an unidentified inflow on the LB, which may be sub-surface connections or spring activity (frame: lost0636).



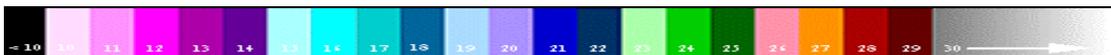
Appendix Figure B14 - The Lostine River at river kilometer 35.4 near Lapover Ranch. The lower cold area is un-identified. The upper cold input is a side channel that is returning colder water to the main-stem (frame: lost1242).



Upper Grande Ronde River Basin

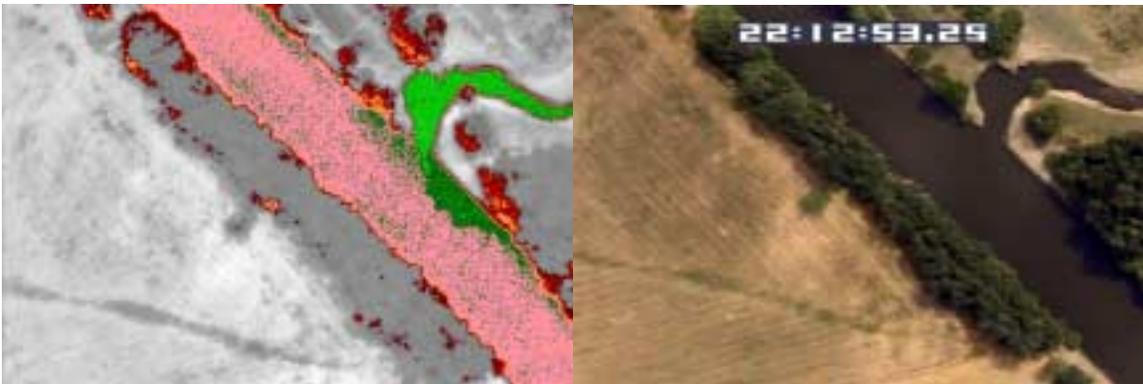


Appendix Figure B15 – Image mosaic showing the confluence of Looking Glass Creek and flowing in from the right side of the image and the Grande Ronde River flowing from the top to the bottom of the image (*frames: lgr0213 to lgr0225*). Looking Glass Creek has a significant cooling effect on the Grande Ronde River.

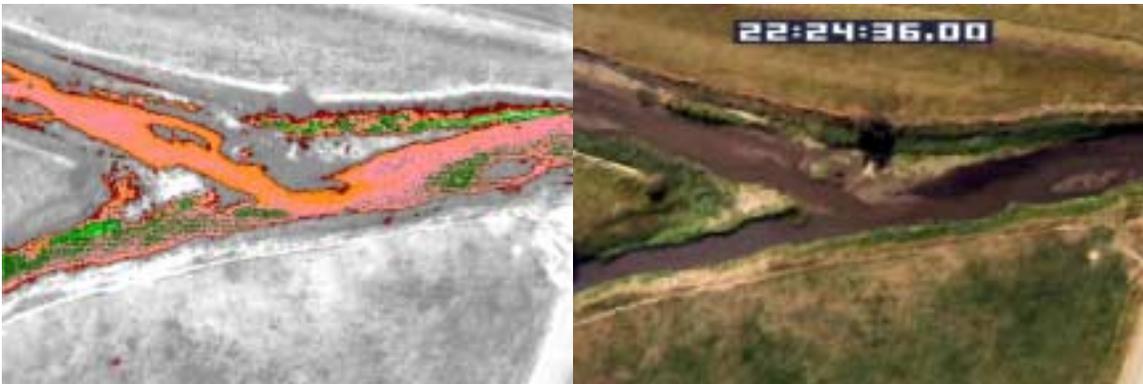




Appendix Figure B16 – Confluence of Indian Creek (27.1°C) flowing in from the bottom of the image on the left side of the bridge, and the Grande Ronde River (26.4°C) flowing diagonally left to right (*frame: ugr1099, 8/20/99, 3:09 PM*).



Appendix Figure B16 – Confluence of Willow Creek (24.3°C) flowing in from right to left and the Grande Ronde River (26.3°C) flowing from the top to bottom (*frame: ugr1313, 8/20/99, 3:12 PM*)

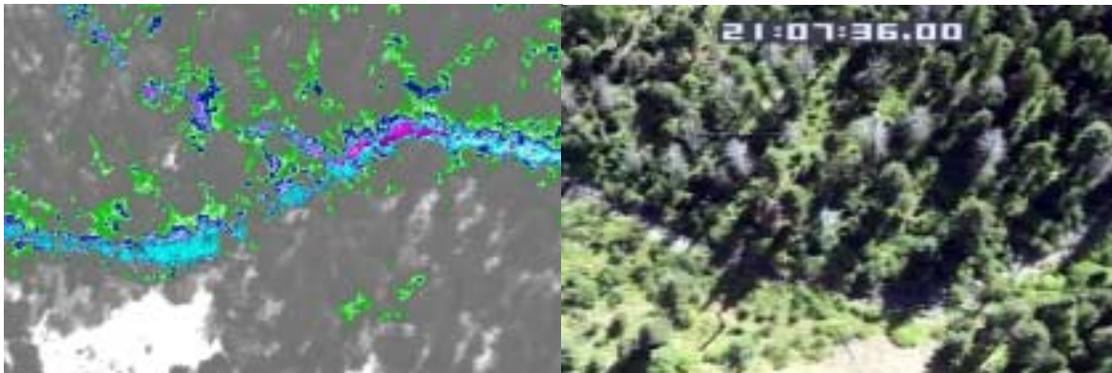


Appendix Figure B17 – Downstream end of the State Ditch at confluence with old Grande Ronde River channel. The state ditch is flowing in diagonally from the top left corner while Catherine Creek is flowing in from the bottom left corner. Alicel Road is just visible in the bottom right of the image (*frame: ugr1864, 8/20/99, 3:24 PM*)

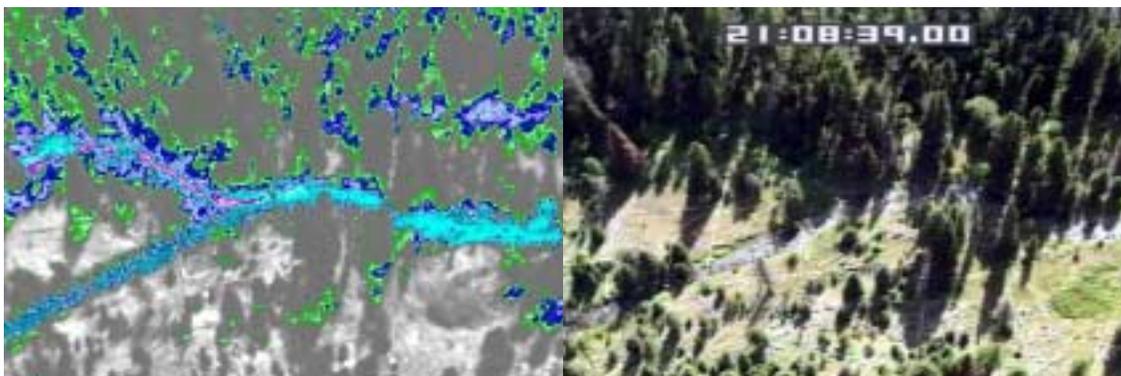




Appendix Figure B18 – Confluence of Beaver Creek (22.4°C) and the Grande Ronde River (24.4°C). Beaver Creek flows in from the left side of the image and meets the Grande Ronde River just upstream of the bridge (*frame: ugr3519, 8/20/99, 3:54 PM*)

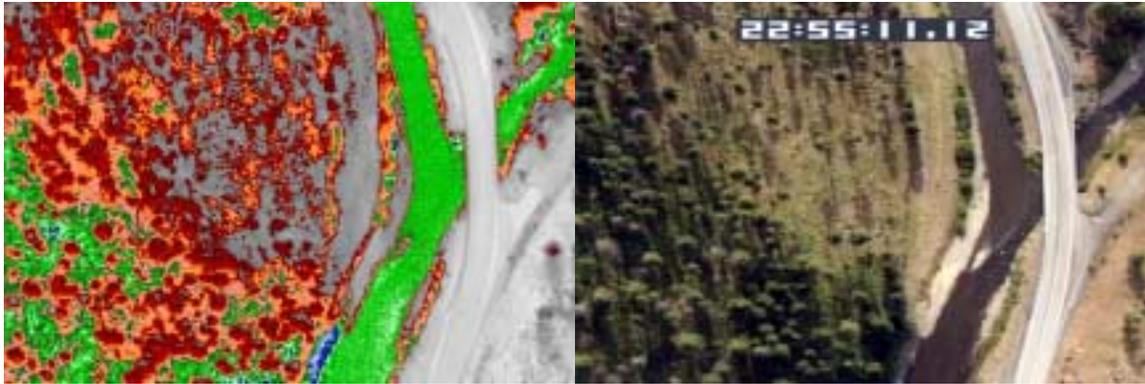


Appendix Figure B19 - Image shows the confluence of Beaver Creek (16.9°C) and Hoodoo Creek (11.9°C) (river km 14.46).



Appendix Figure B20 - Image shows the confluence of Beaver Creek (17.8°C) and an unnamed creek (10.3°C) (river km 16.65).

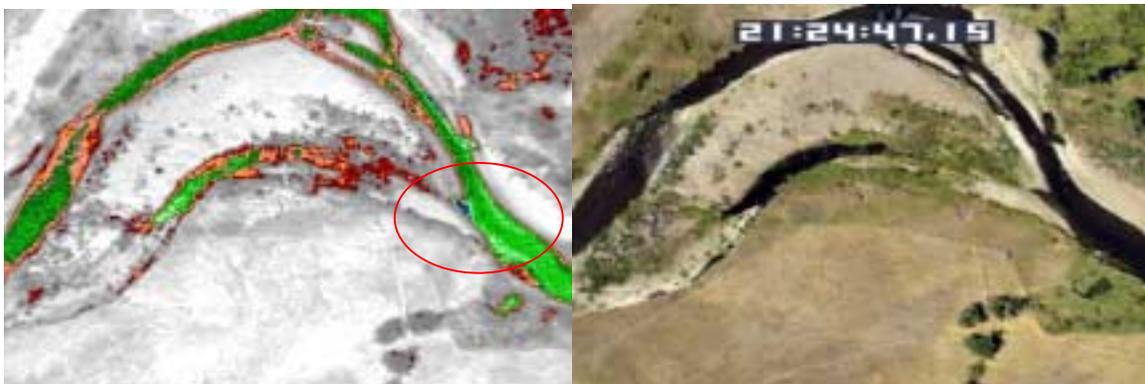




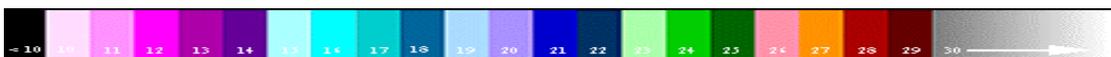
Appendix Figure B21 – Confluence of Meadow Creek (24.4°C) and the Grande Ronde River (24.5°C). Meadow Creek flows in from the upper right side of the image and flows under the bridge (frame: ugr3584, 8/20/99, 3:55 PM)

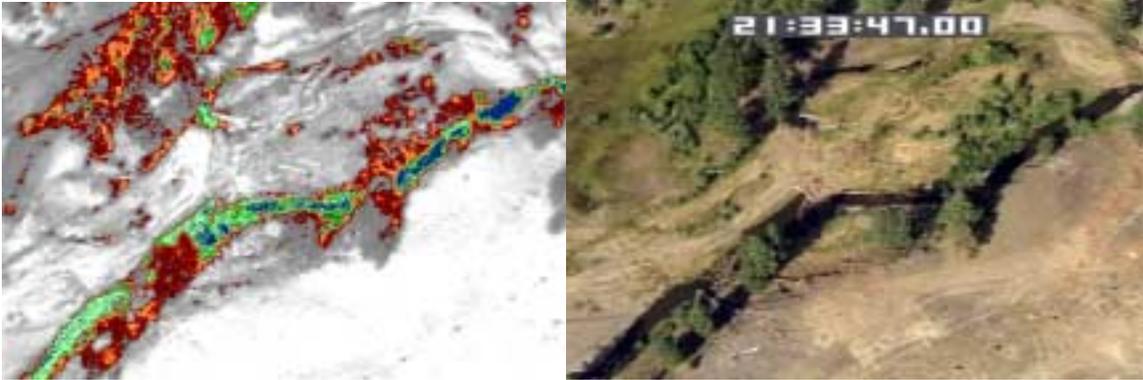


Appendix Figure B22 - The influence of a subsurface inflow on main stream temperatures. Meadow Creek upstream of inflow is 23.8°C and 23.2°C downstream. The temperature of the inflow is 22.0°C. Flow direction is from right to left (river km: 2.67).

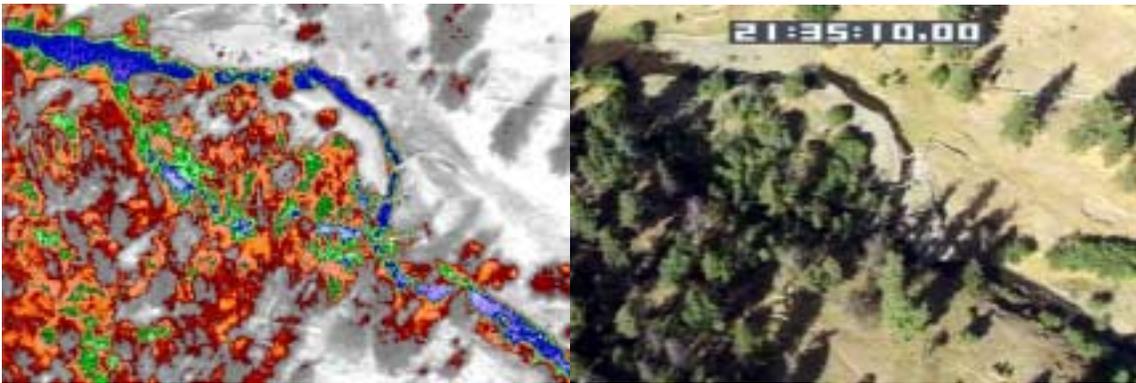


Appendix Figure B23 - At low flows relatively small inputs can change the median thalweg temperature. The temperature upstream of location 1 is 25.4°C and 24.5°C downstream. Flow direction is from left to right (river km: 3.00).





Appendix Figure B24 - This is a location where Meadow Creek begins to cool quickly. There is not obvious point location, however, the green vegetation and some water in the upper left of the day image suggest that there maybe sub-surface interaction through this reach. Flow direction is from left to right (river km 16.05).

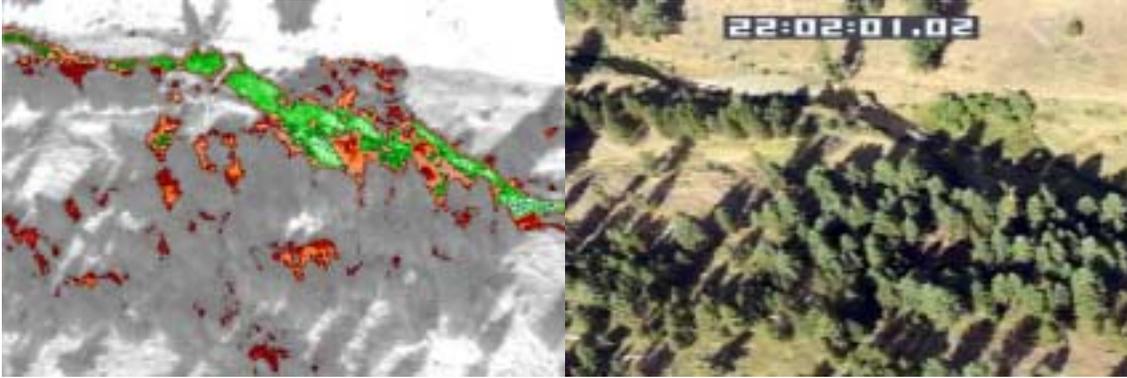


Appendix Figure B25 - The stream splits into two channels. It appears that the left channel is much cooler then the right channel. The left channel probably picks up some sub-surface flow, but this section of stream is in the shadows (river km 18.19).

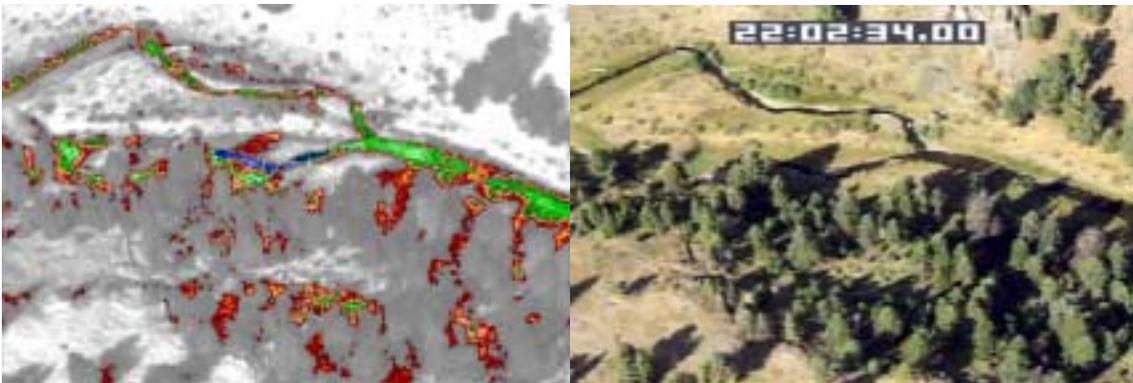


Appendix Figure B26 - A small spring enters the stream and influences temperatures locally. The stream is probably picking up more flow then is apparent in the imagery. McCoy Creek (26.6°C) flows from left to right in the image (river km: 1.39).



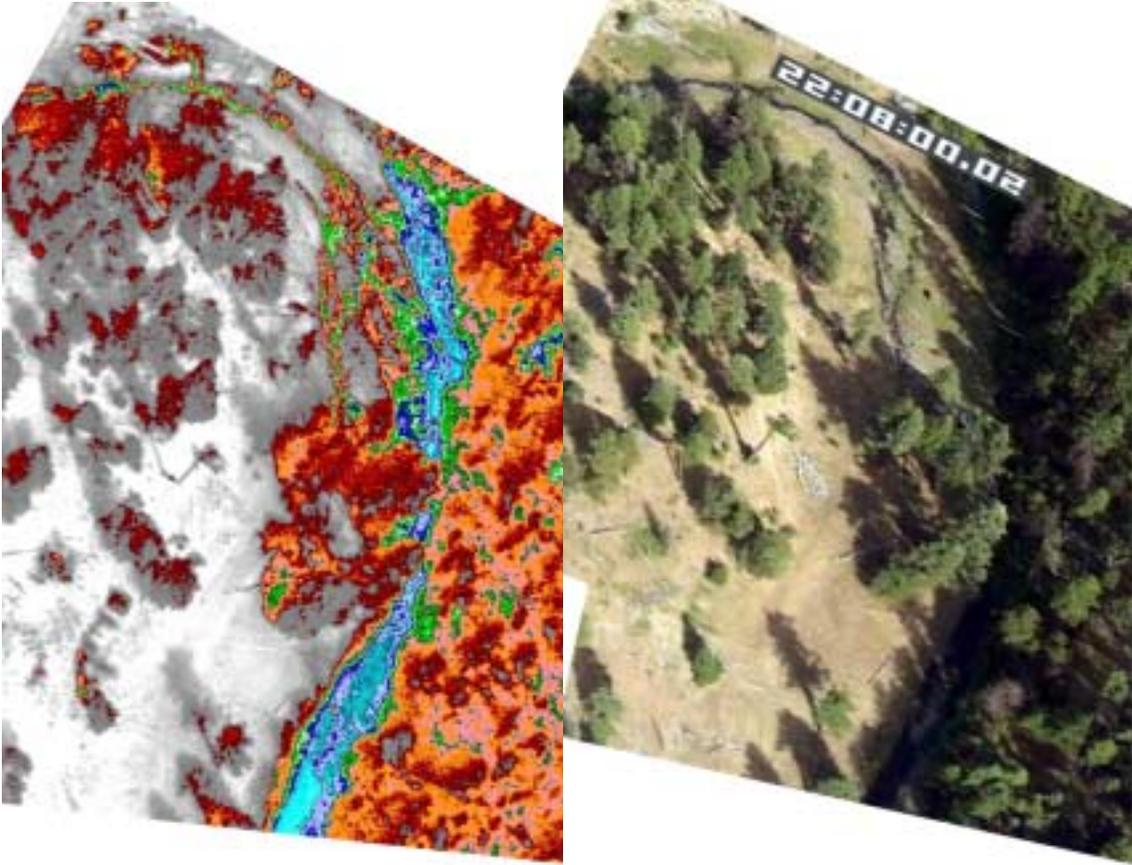


Appendix Figure B27 - McCoy Creek (23.6°C) flows from left to right in the image and cools through this reach. The stream continues to cool for several 100 meters downstream before starting to warm again (river km: 3.15).

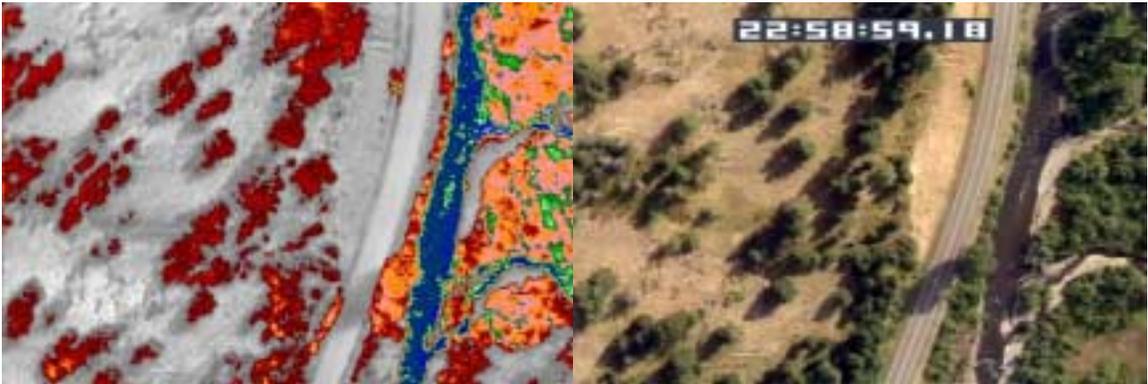


Appendix Figure B28 - McCoy Creek (23.6°C) flows from left to right in the image. The cold-water inflow (left bank) appears to be a side channel that picks up some sub-surface flow (river km 4.12).

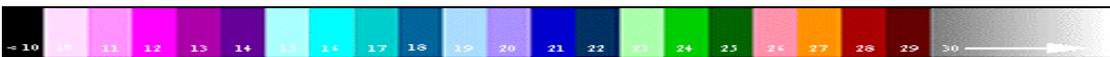


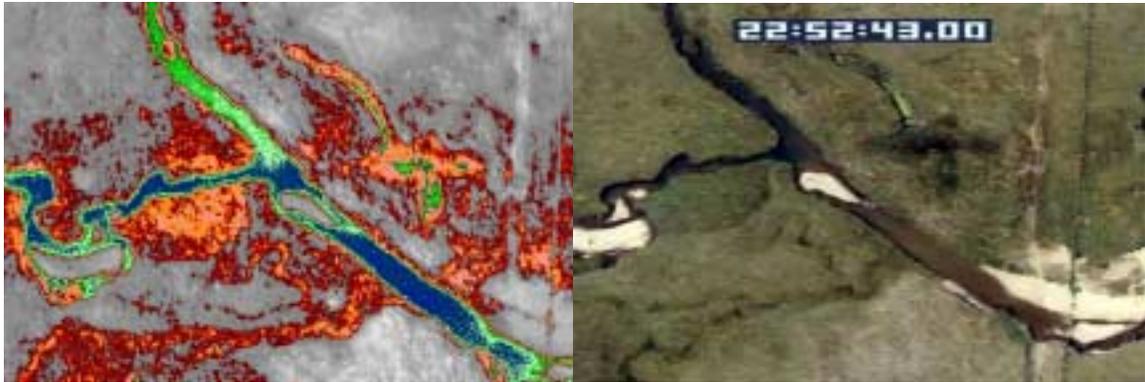


Appendix Figure B29 - McCoy Creek temperature drops through this reach. The shading in the day TV image makes it difficult to determine the source.

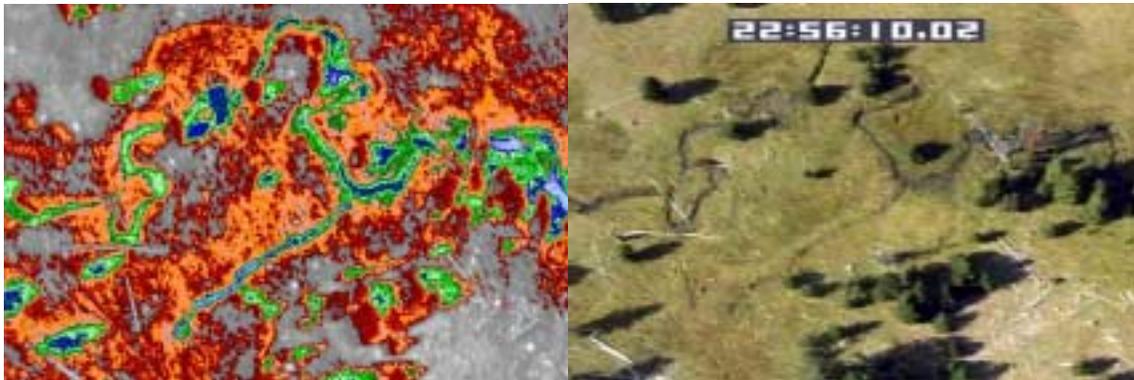


Appendix Figure B30 – Confluence of Fly Creek and the Grande Ronde River (22.5°C). Fly creek flows in from the right side of the image. Two channels are visible. (*frame: ugr3800, 8/20/99, 3:59 PM*)

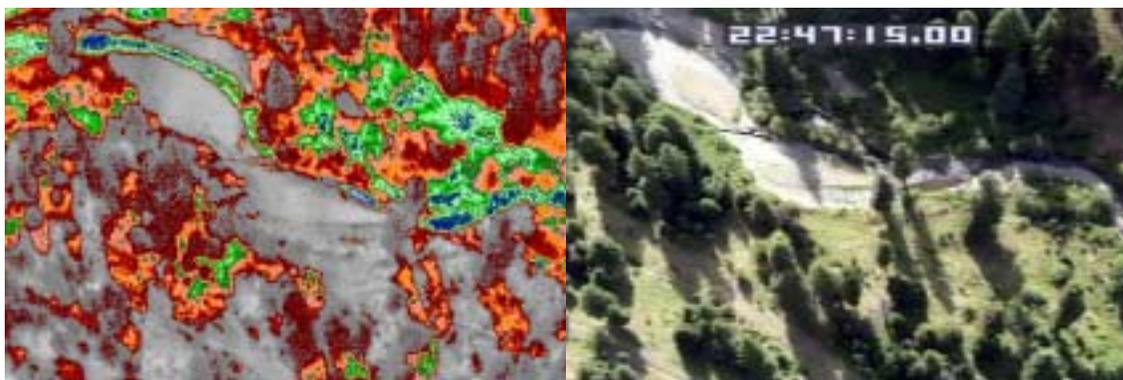




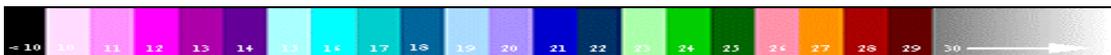
Appendix Figure B31 - Image shows the confluence of Fly Creek (24.2°C) and Little Fly Creek (22.4°C). Fly Creek flows from the top to the bottom of the image and Little Fly Creek flows in from the left side of the image (river km 13.7).

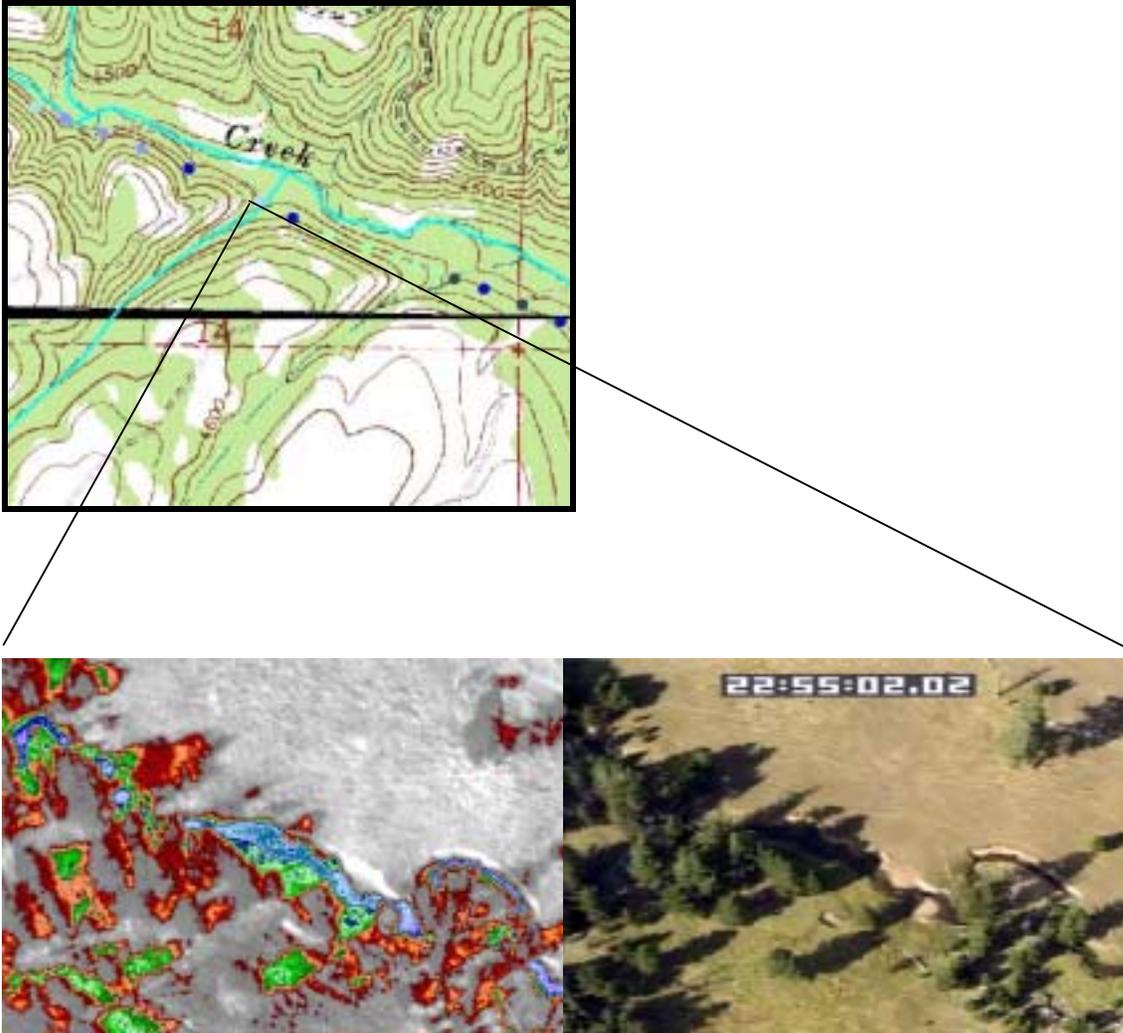


Appendix Figure B32 - Fly Creek (flowing left to right) is shown its confluence with Squaw Creek. Although Squaw Creek does not appear to have any surface flow, there does appear to be some sub-surface flow in this area. The stream is very small in this reach (river km 19.8).

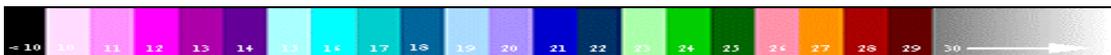


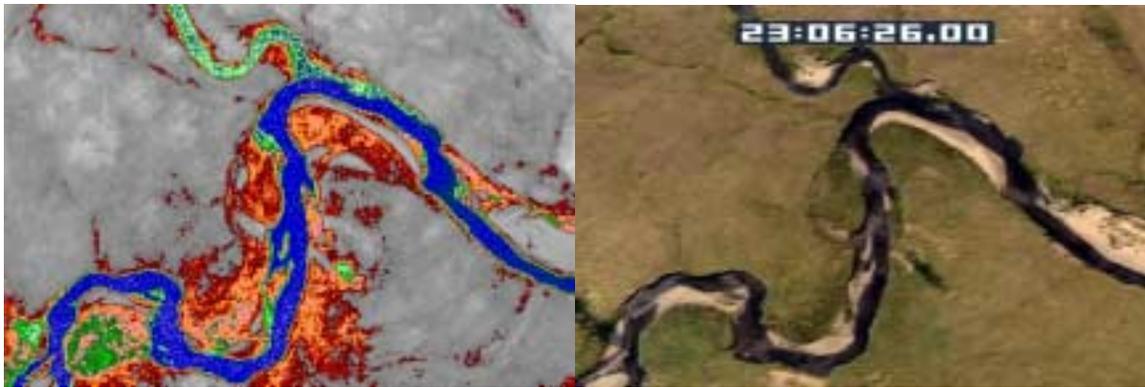
Appendix Figure B33 - Fly Creek (flowing left to right) begins to cool through this reach. There appears to be some sub-surface inflow at the bottom of the gravel bars but it is difficult to determine at this scale (river km 2.75).





Appendix Figure B34 - Fly Creek cools rapidly at this location. Although, there is not apparent surface influence, a reach scale analysis shows that there are several intermittent streams that converge at this location suggesting possible groundwater influence. The map is 1.5 km across (river km 17.94).





Appendix Figure B35 – Confluence of Sheep Creek (23.3°C) and the Grande Ronde River (21.4°C). Sheep Creek flows in from the top of the image and the Grande Ronde flows from left to right. (frame: *ugr4215*, 8/20/99, 3:06 PM).



Appendix Figure B36 – Confluence of Limber Jim Creek (20.7°C) and the Grande Ronde River (18.5°C). Limber Jim Creek flows in from the top left of the image. The Grande Ronde flows in from the top of the image and then turns and flows from right to left in the image. (frame: *ugr4322*, 8/20/99, 3:08 PM).

