**Supplementary file 1**

**Supplementary file 1a**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ID | Sequenced | Morphology | | Survivorship | Experiment | Lake | Species |
| CP04E02 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP07F05 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP08H06 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP09C02 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP09D01 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP09F10 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP10B05 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP11C10 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP13E03 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP13F01 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| LL01F03 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL01F05 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL01G05 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL02A08 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL02D09 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL02D11 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL02E04 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL02E07 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL02E09 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL04E03 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL04E09 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL04F02 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL04F07 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL05A01 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL05C06 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL05C09 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL05C10 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL05D10 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL05E06 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL05E08 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL05H10 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL06A10 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL06B03 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL06C10 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL06D12 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL06E10 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL06F08 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL08B09 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL08B11 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL08G07 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL08G10 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL08H01 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL09A09 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL09A10 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL09B05 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL09C03 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL09D01 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL09D10 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL09E01 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL09F03 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL09H07 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL09H10 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL10A08 | This study | | Yes | Non-Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| CP02D01 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP02E09 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP03D02 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP03G03 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP03G07 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP05B08 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP05E02 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP05G12 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP05H10 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP06E09 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP06G01 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP06H09 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP07E08 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP07H01 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP07H11 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP08F07 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP08G08 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP09D02 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP10A03 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP10C04 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP10C07 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP10C12 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP10F12 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP10H01 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP11B03 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP11C08 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP11D04 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP11G06 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP11G12 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP12E05 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP12E07 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP12H04 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP13B02 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP13B08 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP14C04 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP15A10 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP15B08 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP15E01 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP15E03 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP17A01 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP18B11 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP19B02 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP19C02 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP19C07 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP19F01 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CP19G03 | This study | | Yes | Survivor | Martin & Gould 2020 | Crescent Pond | Hybrid |
| CPH01 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Crescent Pond | Hybrid |
| CPH02 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Crescent Pond | Hybrid |
| CPH03 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Crescent Pond | Hybrid |
| CPH04 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Crescent Pond | Hybrid |
| CPH05 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Crescent Pond | Hybrid |
| CPH07 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Crescent Pond | Hybrid |
| CPH08 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Crescent Pond | Hybrid |
| CPH09 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Crescent Pond | Hybrid |
| CPH10 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Crescent Pond | Hybrid |
| CPH100 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Crescent Pond | Hybrid |
| CPH11 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Crescent Pond | Hybrid |
| CPH123 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Crescent Pond | Hybrid |
| LL01H04 | This study | | Yes | Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL02G09 | This study | | Yes | Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL06B06 | This study | | Yes | Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL06E04 | This study | | Yes | Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL07E12 | This study | | Yes | Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL07G04 | This study | | Yes | Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL08A09 | This study | | Yes | Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL08B04 | This study | | Yes | Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL08D05 | This study | | Yes | Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL10F08 | This study | | Yes | Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL12B04 | This study | | Yes | Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL13B06 | This study | | Yes | Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL13D04 | This study | | Yes | Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL17H03 | This study | | Yes | Survivor | Martin & Gould 2020 | Little Lake | Hybrid |
| LL106 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Little Lake | Hybrid |
| LL114 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Little Lake | Hybrid |
| LL124 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Little Lake | Hybrid |
| LL129 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Little Lake | Hybrid |
| LL175 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Little Lake | Hybrid |
| LL23 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Little Lake | Hybrid |
| LL247 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Little Lake | Hybrid |
| LL251 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Little Lake | Hybrid |
| LL271 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Little Lake | Hybrid |
| LLH12 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Little Lake | Hybrid |
| LLH34 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Little Lake | Hybrid |
| LLH41 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Little Lake | Hybrid |
| LLH51 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Little Lake | Hybrid |
| LLH94 | This study | | Yes | Survivor | Martin & Wainwright 2013 | Little Lake | Hybrid |
| CRPA1 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Generalist |
| CRPA1000 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Generalist |
| CRPA1001 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Generalist |
| CRPA1003 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Generalist |
| CRPA3 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Generalist |
| LILA1 | Richards et al. 2021 | | No | NA | NA | Little Lake | Generalist |
| OSPA1 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Generalist |
| OSPA1000 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Generalist |
| OSPA1001 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Generalist |
| OSPA11 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Generalist |
| OSPA12 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Generalist |
| OSPA13 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Generalist |
| OSPA4 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Generalist |
| OSPA5 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Generalist |
| OSPA6 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Generalist |
| OSPA8 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Generalist |
| OSPA9 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Generalist |
| CRPM1 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Molluscivore |
| CRPM10 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Molluscivore |
| CRPM1000 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Molluscivore |
| CRPM1001 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Molluscivore |
| CRPM11 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Molluscivore |
| CRPM2 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Molluscivore |
| CRPM3 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Molluscivore |
| CRPM5 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Molluscivore |
| CRPM6 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Molluscivore |
| CRPM7 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Molluscivore |
| CRPM8 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Molluscivore |
| CRPM9 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Molluscivore |
| LILM-QTL | Richards et al. 2021 | | No | NA | NA | Little Lake | Molluscivore |
| LILM3 | Richards et al. 2021 | | No | NA | NA | Little Lake | Molluscivore |
| LILM4 | Richards et al. 2021 | | No | NA | NA | Little Lake | Molluscivore |
| LILM5 | Richards et al. 2021 | | No | NA | NA | Little Lake | Molluscivore |
| OSPM1 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Molluscivore |
| OSPM1000 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Molluscivore |
| OSPM1001 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Molluscivore |
| OSPM11 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Molluscivore |
| OSPM2 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Molluscivore |
| OSPM3 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Molluscivore |
| OSPM4 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Molluscivore |
| OSPM5 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Molluscivore |
| OSPM7 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Molluscivore |
| OSPM8 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Molluscivore |
| OSPM9 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Molluscivore |
| CRPP-QTL | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Scale-eater |
| CRPP1000 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Scale-eater |
| CRPP1001 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Scale-eater |
| CRPP2 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Scale-eater |
| CRPP3 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Scale-eater |
| CRPP4 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Scale-eater |
| CRPP5 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Scale-eater |
| CRPP7 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Scale-eater |
| CRPP8 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Scale-eater |
| CRPP9 | Richards et al. 2021 | | No | NA | NA | Crescent Pond | Scale-eater |
| LILP-QTL | Richards et al. 2021 | | No | NA | NA | Little Lake | Scale-eater |
| LILP3 | Richards et al. 2021 | | No | NA | NA | Little Lake | Scale-eater |
| LILP4 | Richards et al. 2021 | | No | NA | NA | Little Lake | Scale-eater |
| LILP5 | Richards et al. 2021 | | No | NA | NA | Little Lake | Scale-eater |
| OSPP1 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Scale-eater |
| OSPP10 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Scale-eater |
| OSPP1000 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Scale-eater |
| OSPP1001 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Scale-eater |
| OSPP11 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Scale-eater |
| OSPP2 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Scale-eater |
| OSPP3 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Scale-eater |
| OSPP4 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Scale-eater |
| OSPP5 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Scale-eater |
| OSPP7 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Scale-eater |
| OSPP9 | Richards et al. 2021 | | No | NA | NA | Osprey Pond (Little Lake) | Scale-eater |
| CPA01 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA03 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA05 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA07 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA09 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA11 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA13 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA15 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA17 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA19 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA21 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA23 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA25 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA27 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA29 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA31 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA33 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA35 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA37 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA39 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA41 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA43 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA45 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA47 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA49 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA51 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA53 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA55 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA57 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| CPA59 | NA | | Yes | Parental | NA | Crescent Pond | Generalist |
| LLA20 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA21 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA22 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA23 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA24 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA25 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA26 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA27 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA28 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA29 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA30 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA31 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA32 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA33 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA34 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA35 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA36 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA37 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA38 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA39 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA40 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA41 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA42 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA43 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA44 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA45 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA46 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA47 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA48 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| LLA49 | NA | | Yes | Parental | NA | Little Lake | Generalist |
| CPM01 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM02 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM03 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM04 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM05 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM06 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM07 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM08 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM09 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM10 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM11 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM12 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM13 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM14 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM15 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM16 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM17 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM18 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM19 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| CPM20 | NA | | Yes | Parental | NA | Crescent Pond | Molluscivore |
| LLM01 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM02 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM03 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM04 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM05 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM06 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM07 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM08 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM09 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM10 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM11 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM12 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM13 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM14 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM15 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM16 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM17 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| LLM18 | NA | | Yes | Parental | NA | Little Lake | Molluscivore |
| CPP01 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP02 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP03 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP04 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP05 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP06 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP07 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP08 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP09 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP10 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP11 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP12 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP13 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP14 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP15 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP16 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP17 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP18 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP19 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP20 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP21 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP22 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP23 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP24 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP25 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP26 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP27 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP28 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP29 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| CPP30 | NA | | Yes | Parental | NA | Crescent Pond | Scale-eater |
| LLP01 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP02 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP03 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP04 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP05 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP06 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP07 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP08 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP09 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP10 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP11 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP12 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP13 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP14 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP15 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP16 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP17 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP18 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP19 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP20 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP21 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP22 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP23 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP24 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP25 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP26 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP27 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP28 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP29 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |
| LLP30 | NA | | Yes | Parental | NA | Little Lake | Scale-eater |

**Supplementary file 1b**



**Supplementary file 1c**



**Supplementary file 1d**



**Supplementary file 1e**



**Supplementary file 1f**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Scaffold** | | **Position** | **Significance** | **REF** | **ALT** | **Variant Type** | **Gene Identifier** | **Gene Card** |
| HiC\_scaffold\_1 | | 32071263 | FDR | A | C | intergenic | CBRO\_00000660-CBRO\_00000661 | Znf250-Ptgdr2 |
| **HiC\_scaffold\_1** | | **43866598** | **Bonferroni** | **G** | **A** | **intergenic** | **CBRO\_00000910-CBRO\_00000911** | **PPM1K-OVCH2** |
| HiC\_scaffold\_1 | | 43867614 | FDR | C | T | intergenic | CBRO\_00000910-CBRO\_00000911 | PPM1K-OVCH2 |
| HiC\_scaffold\_3 | | 2658774 | FDR | T | A | intergenic | CBRO\_00017856-CBRO\_00017857 | KMT2E-Magi2 |
| HiC\_scaffold\_3 | | 2658775 | FDR | T | C | intergenic | CBRO\_00017856-CBRO\_00017857 | KMT2E-Magi2 |
| HiC\_scaffold\_3 | | 2658793 | FDR | C | A | intergenic | CBRO\_00017856-CBRO\_00017857 | KMT2E-Magi2 |
| HiC\_scaffold\_4 | | 18899496 | FDR | T | C | intergenic | CBRO\_00012427-CBRO\_00012428 | UNKNOWN-edc4 |
| HiC\_scaffold\_5 | | 18306419 | FDR | C | G | upstream; intergenic | CBRO\_00001232; CBRO\_00001231-CBRO\_00001232 | xlrs1; PPEF2-xlrs1 |
| HiC\_scaffold\_5 | | 18306428 | FDR | A | T | upstream; intergenic | CBRO\_00001232; CBRO\_00001231-CBRO\_00001232 | xlrs1; PPEF2-xlrs1 |
| HiC\_scaffold\_5 | | 18307019 | FDR | G | T | intronic | CBRO\_00001232 | xlrs1 |
| HiC\_scaffold\_5 | | 18307030 | FDR | G | A | intronic | CBRO\_00001232 | xlrs1 |
| HiC\_scaffold\_5 | | 18311696 | FDR | C | T | intronic | CBRO\_00001232 | xlrs1 |
| HiC\_scaffold\_5 | | 40475116 | FDR | T | A | intergenic | CBRO\_00001627-CBRO\_00001628 | SLC25A44-UBE2Q2 |
| HiC\_scaffold\_7 | | 10290141 | FDR | T | C | downstream; intergenic | CBRO\_00009717; CBRO\_00009716-CBRO\_00009717 | Nfkbie; SLC35B2-Nfkbie |
| HiC\_scaffold\_7 | | 10290142 | FDR | G | C | downstream; intergenic | CBRO\_00009717; CBRO\_00009716-CBRO\_00009717 | Nfkbie; SLC35B2-Nfkbie |
| HiC\_scaffold\_7 | | 10290165 | FDR | A | G | downstream; intergenic | CBRO\_00009717; CBRO\_00009716-CBRO\_00009717 | Nfkbie; SLC35B2-Nfkbie |
| HiC\_scaffold\_7 | | 10290166 | FDR | T | C | downstream; intergenic | CBRO\_00009717; CBRO\_00009716-CBRO\_00009717 | Nfkbie; SLC35B2-Nfkbie |
| HiC\_scaffold\_7 | | 10290168 | FDR | T | C | downstream; intergenic | CBRO\_00009717; CBRO\_00009716-CBRO\_00009717 | Nfkbie; SLC35B2-Nfkbie |
| HiC\_scaffold\_7 | | 13815058 | FDR | A | G | synonymous; downstream | CBRO\_00009805; CBRO\_00009804 | Aloxe3; UNKNOWN |
| HiC\_scaffold\_7 | | 13815326 | FDR | C | T | intronic | CBRO\_00009805 | Aloxe3 |
| HiC\_scaffold\_7 | | 15349830 | FDR | C | A | intergenic | CBRO\_00009834-CBRO\_00009835 | Adcy8-efr3b |
| HiC\_scaffold\_7 | | 18378061 | FDR | T | A | intergenic | CBRO\_00009902-CBRO\_00009903 | Fam84a-DDX1 |
| **HiC\_scaffold\_8** | | **20263964** | **Bonferroni** | **G** | **A** | **upstream; intergenic** | **CBRO\_00010647; CBRO\_00010647-CBRO\_00010648** | **Srcin1; Srcin1-Srcin1** |
| HiC\_scaffold\_8 | | 31539262 | FDR | G | A | upstream; intergenic | CBRO\_00010835; CBRO\_00010834-CBRO\_00010835 | Gjd3; Gjd3-Gjd3 |
| HiC\_scaffold\_11 | | 3106766 | FDR | T | A | intronic | CBRO\_00013361 | prkdc |
| HiC\_scaffold\_11 | | 3138733 | FDR | G | A | intergenic | CBRO\_00013361-CBRO\_00013362 | prkdc-arhgap29 |
| HiC\_scaffold\_11 | | 5658921 | FDR | A | G | intronic | CBRO\_00013404 | KAZN |
| HiC\_scaffold\_14 | | 17556007 | FDR | C | T | intergenic | CBRO\_00014134-CBRO\_00014135 | UNKNOWN-Abr |
| HiC\_scaffold\_14 | | 17556026 | FDR | C | A | intergenic | CBRO\_00014134-CBRO\_00014135 | UNKNOWN-Abr |
| HiC\_scaffold\_16 | | 32837191 | FDR | T | C | intronic | CBRO\_00003226 | KIF1B |
| HiC\_scaffold\_16 | | 35727503 | FDR | G | C | intergenic | CBRO\_00003289-CBRO\_00003290 | Pip5k1c-Polr2e |
| HiC\_scaffold\_16 | | 40215889 | FDR | G | A | intergenic | CBRO\_00003383-CBRO\_00003384 | chst10-UNKNOWN |
| HiC\_scaffold\_16 | | 40300592 | FDR | C | A | intergenic | CBRO\_00003384-CBRO\_00003385 | UNKNOWN-Carmil3 |
| HiC\_scaffold\_18 | | 26969972 | FDR | T | G | intronic | CBRO\_00013239 | CSAD |
| HiC\_scaffold\_18 | | 26970123 | FDR | C | T | synonymous | CBRO\_00013239 | CSAD |
| HiC\_scaffold\_18 | | 26970601 | FDR | T | A | intronic | CBRO\_00013239 | CSAD |
| HiC\_scaffold\_18 | | 26978410 | FDR | G | A | intronic | CBRO\_00013240 | Znf740 |
| HiC\_scaffold\_20 | | 332642 | FDR | G | A | missense | CBRO\_00016084 | GTF3C4 |
| HiC\_scaffold\_20 | | 332689 | FDR | A | G | missense | CBRO\_00016084 | GTF3C4 |
| HiC\_scaffold\_20 | | 14820437 | FDR | A | T | intronic | CBRO\_00016304 | MALT1 |
| HiC\_scaffold\_20 | | 14820448 | FDR | T | C | intronic | CBRO\_00016304 | MALT1 |
| HiC\_scaffold\_24 | | 1469530 | FDR | G | T | intergenic | CBRO\_00014375-CBRO\_00014376 | UNKNOWN-UNKNOWN |
| HiC\_scaffold\_24 | | 3223583 | FDR | T | A | intergenic | CBRO\_00014421-CBRO\_00014422 | Gal3st3-RIN2 |
| HiC\_scaffold\_24 | | 11618442 | FDR | T | G | intronic | CBRO\_00014601 | ABCA4 |
| **HiC\_scaffold\_24** | | **15964553** | **Bonferroni** | **C** | **T** | **intergenic** | **CBRO\_00014635-CBRO\_00014636** | **Lrfn2-SNX15** |
| HiC\_scaffold\_27 | | 1898180 | FDR | G | A | downstream; intergenic | CBRO\_00005887; CBRO\_00005886-CBRO\_00005887 | UNKNOWN; hoxb13a-UNKNOWN |
| HiC\_scaffold\_27 | | 8137335 | FDR | G | T | intronic | CBRO\_00005998 | SMARCA4 |
| HiC\_scaffold\_27 | | 9065056 | FDR | C | A | intergenic | CBRO\_00006026-CBRO\_00006027 | ANKFN1-ccdc134 |
| HiC\_scaffold\_27 | | 12370585 | FDR | C | T | intergenic | CBRO\_00006131-CBRO\_00006132 | SHISA9-Desi1 |
| HiC\_scaffold\_27 | | 32078665 | FDR | C | G | intergenic | CBRO\_00006685-CBRO\_00006686 | med25-Lrrc4b |
| HiC\_scaffold\_27 | | 34904388 | FDR | A | C | intergenic | CBRO\_00006756-CBRO\_00006757 | Grin2c-nog3 |
| HiC\_scaffold\_27 | | 35431570 | FDR | G | C | intergenic | CBRO\_00006756-CBRO\_00006757 | Grin2c-nog3 |
| HiC\_scaffold\_27 | | 35431578 | FDR | C | T | intergenic | CBRO\_00006756-CBRO\_00006757 | Grin2c-nog3 |
| HiC\_scaffold\_27 | | 35431585 | FDR | A | G | intergenic | CBRO\_00006756-CBRO\_00006757 | Grin2c-nog3 |
| HiC\_scaffold\_34 | | 16654675 | FDR | G | C | intergenic | CBRO\_00001997-CBRO\_00001998 | MDFIC2-foxp1b |
| HiC\_scaffold\_34 | | 19393244 | FDR | A | T | upstream; intergenic | CBRO\_00002027; CBRO\_00002027-CBRO\_00002028 | SUOX; SUOX-SUOX |
| HiC\_scaffold\_34 | | 22010499 | FDR | C | T | intronic | CBRO\_00002117 | GNAI2 |
| HiC\_scaffold\_34 | | 31220916 | FDR | T | A | upstream; intergenic | CBRO\_00002389; CBRO\_00002388-CBRO\_00002389 | CTTNBP2NL; Kcnd3-CTTNBP2NL |
| HiC\_scaffold\_34 | | 37769304 | FDR | A | C | intergenic | CBRO\_00002519-CBRO\_00002520 | ASIC2-asic1 |
| HiC\_scaffold\_37 | | 5963405 | FDR | T | C | intergenic | CBRO\_00011020-CBRO\_00011021 | C14orf93-pim2 |
| HiC\_scaffold\_37 | | 11017168 | FDR | G | A | intergenic | CBRO\_00011155-CBRO\_00011156 | GALNT12-elp2 |
| HiC\_scaffold\_37 | | 13822135 | FDR | A | G | upstream; intergenic | CBRO\_00011221; CBRO\_00011220-CBRO\_00011221 | SATB1; KCNH8-SATB1 |
| HiC\_scaffold\_37 | | 13823678 | FDR | G | A | upstream; intergenic | CBRO\_00011221; CBRO\_00011220-CBRO\_00011221 | SATB1; KCNH8-SATB1 |
| HiC\_scaffold\_37 | | 13832007 | FDR | T | A | missense | CBRO\_00011221 | SATB1 |
| HiC\_scaffold\_37 | | 16920863 | FDR | T | C | intergenic | CBRO\_00011259-CBRO\_00011260 | CSMD1-UNKNOWN |
| **HiC\_scaffold\_37** | | **18591438** | **Bonferroni** | **G** | **A** | **intergenic** | **CBRO\_00011301-CBRO\_00011302** | **cck-trim71** |
| HiC\_scaffold\_37 | | 18591463 | FDR | C | T | intergenic | CBRO\_00011301-CBRO\_00011302 | cck-trim71 |
| HiC\_scaffold\_37 | | 18596716 | FDR | A | T | intergenic | CBRO\_00011301-CBRO\_00011302 | cck-trim71 |
| HiC\_scaffold\_40 | | 5885291 | FDR | G | T | downstream; intergenic | CBRO\_00016614; CBRO\_00016613-CBRO\_00016614 | C14orf93 homolog; HTR2A-C14orf93 homolog |
| HiC\_scaffold\_43 | | 2568535 | FDR | A | G | intergenic | CBRO\_00008246-CBRO\_00008247 | UNKNOWN-Gpr68 |
| HiC\_scaffold\_44 | | 25886134 | FDR | A | C | intergenic | CBRO\_00007276-CBRO\_00007277 | RAPGEF2-QDPR |
| HiC\_scaffold\_45 | | 885834 | FDR | A | C | upstream; intergenic | CBRO\_00018766; CBRO\_00018766-CBRO\_00018767 | Mog; Mog-EPHB4 |
| HiC\_scaffold\_45 | | 2213441 | FDR | G | T | intronic | CBRO\_00018814 | Nlrp12 |
| HiC\_scaffold\_46 | | 856248 | FDR | A | G | intergenic | CBRO\_00007439-CBRO\_00007440 | UNKNOWN-NLRP12 |
| HiC\_scaffold\_46 | | 1232350 | FDR | G | A | intronic | CBRO\_00007448 | NEB |
| HiC\_scaffold\_46 | | 30183758 | FDR | C | G | intergenic | CBRO\_00008059-CBRO\_00008060 | TFRC-Rgs11 |
| HiC\_scaffold\_46 | | 32048848 | FDR | A | C | intronic | CBRO\_00008105 | Hsd17b7 |
| HiC\_scaffold\_46 | | 32050109 | FDR | G | T | synonymous | CBRO\_00008105 | Hsd17b7 |
| **HiC\_scaffold\_46** | | **35151009** | **Bonferroni** | **T** | **C** | **downstream; intergenic** | **CBRO\_00008165; CBRO\_00008165-CBRO\_00008166** | **Klf9; Klf9-Tsen15** |
| HiC\_scaffold\_46 | | 35163681 | FDR | T | C | downstream; downstream; intergenic | CBRO\_00008166; CBRO\_00008167; CBRO\_00008166-CBRO\_00008167 | Tsen15; UNKNOWN; Tsen15-UNKNOWN |
| HiC\_scaffold\_46 | | 35164267 | FDR | A | G | downstream; downstream; intergenic | CBRO\_00008166; CBRO\_00008167; CBRO\_00008166-CBRO\_00008167 | Tsen15; UNKNOWN; Tsen15-UNKNOWN |
| HiC\_scaffold\_47 | | 787141 | FDR | T | G | upstream; intergenic | CBRO\_00008838; CBRO\_00008837-CBRO\_00008838 | Nlrc3; NLRC3-Nlrc3 |
| HiC\_scaffold\_47 | | 4300295 | FDR | G | A | downstream; intergenic | CBRO\_00008933; CBRO\_00008933-CBRO\_00008934 | NEK6; NEK6-Psmb7 |
| HiC\_scaffold\_47 | | 6767766 | FDR | T | C | intergenic | CBRO\_00008991-CBRO\_00008992 | TACR1-Grk5 |
| HiC\_scaffold\_52 | | 20791197 | FDR | T | A | upstream; intronic | CBRO\_00011892; CBRO\_00011891 | rabl3; GTF2E1 |
| HiC\_scaffold\_52 | | 22551701 | FDR | G | C | intergenic | CBRO\_00011922-CBRO\_00011923 | ALS2-Serp2 |
| HiC\_scaffold\_52 | | 31021517 | FDR | C | T | intergenic | CBRO\_00012051-CBRO\_00012052 | Tmeff2-slc39a10 |
| **HiC\_scaffold\_53** | | **11317840** | **Bonferroni** | **A** | **G** | **intergenic** | **CBRO\_00005178-CBRO\_00005179** | **Fucolectin-1-Fucolectin-5** |
| HiC\_scaffold\_53 | | 11326035 | FDR | C | T | intergenic | CBRO\_00005178-CBRO\_00005179 | Fucolectin-1-Fucolectin-5 |
| HiC\_scaffold\_53 | | 11326410 | FDR | G | A | intergenic | CBRO\_00005178-CBRO\_00005179 | Fucolectin-1-Fucolectin-5 |
| HiC\_scaffold\_53 | | 11331079 | FDR | A | G | intergenic | CBRO\_00005178-CBRO\_00005179 | Fucolectin-1-Fucolectin-5 |
| HiC\_scaffold\_53 | | 15966447 | FDR | G | A | upstream; downstream; intergenic | CBRO\_00005235; CBRO\_00005234; CBRO\_00005234-CBRO\_00005235 | Tmem222; WDTC1; WDTC1-Tmem222 |
| HiC\_scaffold\_53 | | 17413090 | FDR | A | G | missense | CBRO\_00005274 | Mag |
| HiC\_scaffold\_53 | | 20715576 | FDR | C | A | intergenic | CBRO\_00005380-CBRO\_00005381 | Scrt2-Ino80c |
| HiC\_scaffold\_53 | | 20715623 | FDR | G | A | intergenic | CBRO\_00005380-CBRO\_00005381 | Scrt2-Ino80c |
| HiC\_scaffold\_53 | | 20715851 | FDR | A | G | intergenic | CBRO\_00005380-CBRO\_00005381 | Scrt2-Ino80c |
| HiC\_scaffold\_53 | | 27386094 | FDR | G | T | intronic | CBRO\_00005625 | Arhgef1 |
| HiC\_scaffold\_53 | | 27396961 | FDR | T | A | intronic | CBRO\_00005625 | Arhgef1 |
| HiC\_scaffold\_53 | | 27398605 | FDR | T | G | downstream; intergenic | CBRO\_00005625; CBRO\_00005625-CBRO\_00005626 | Arhgef1; Arhgef1-CD79A |
| HiC\_scaffold\_53 | | 33282501 | FDR | A | G | intergenic | CBRO\_00005732-CBRO\_00005733 | mios-GLCCI1 |
| HiC\_scaffold\_53 | | 39228193 | FDR | T | C | intergenic | CBRO\_00005830-CBRO\_00005831 | UNKNOWN-GnRHR2 |
| **HiC\_scaffold\_53** | | **39228264** | **Bonferroni** | **C** | **T** | **intergenic** | **CBRO\_00005830-CBRO\_00005831** | **UNKNOWN-GnRHR2** |
| HiC\_scaffold\_53 | | 39228942 | FDR | A | T | intergenic | CBRO\_00005830-CBRO\_00005831 | UNKNOWN-GnRHR2 |
| HiC\_scaffold\_53 | | 39279263 | FDR | G | T | intronic | CBRO\_00005832 | IGDCC3 |
| HiC\_scaffold\_53 | | 39770914 | FDR | A | T | intronic | CBRO\_00005849 | Cpne4 |
| HiC\_scaffold\_611 | | 5621 | FDR | A | T | intergenic | CHR\_START-CBRO\_00020243 | CHR\_START-fzdz-a |
| HiC\_scaffold\_611 | | 5625 | FDR | G | T | intergenic | CHR\_START-CBRO\_00020243 | CHR\_START-fzdz-a |
| HiC\_scaffold\_611 | | 5634 | FDR | T | A | intergenic | CHR\_START-CBRO\_00020243 | CHR\_START-fzdz-a |
| HiC\_scaffold\_1053 | | 3494 | FDR | A | G | downstream; intergenic | CBRO\_00020503; CHR\_START-CBRO\_00020503 | UBE2G2; CHR\_START-UBE2G2 |
| HiC\_scaffold\_1133 | | 9946 | FDR | A | G | intergenic | . | . |
| HiC\_scaffold\_1371 | | 7318 | FDR | C | T | upstream; intergenic | CBRO\_00021026; CHR\_START-CBRO\_00021026 | UNKNOWN; CHR\_START-UNKNOWN |
| **HiC\_scaffold\_1848** | | **40119** | **Bonferroni** | **C** | **A** | **intergenic** | **.** | **.** |
| **HiC\_scaffold\_1848** | | **40465** | **Bonferroni** | **T** | **A** | **intergenic** | **.** | **.** |
| **HiC\_scaffold\_1848** | | **40590** | **Bonferroni** | **T** | **C** | **intergenic** | **.** | **.** |
| HiC\_scaffold\_1848 | | 40877 | FDR | T | C | intergenic | . | . |
| HiC\_scaffold\_1848 | | 41351 | FDR | T | C | intergenic | . | . |
| HiC\_scaffold\_2220 | | 10128 | FDR | G | T | intergenic | . | . |
| **HiC\_scaffold\_4461** | | **12939** | **Bonferroni** | **T** | **A** | **intergenic** | **.** | **.** |
| HiC\_scaffold\_4665 | | 13941 | FDR | C | T | intergenic | . | . |
| HiC\_scaffold\_6275 | | 6000 | FDR | C | A | intergenic | . | . |
| HiC\_scaffold\_6337 | | 5745 | FDR | T | G | intronic | CBRO\_00021217 | PKP3 |
| HiC\_scaffold\_6769 | | 2796 | FDR | G | A | intergenic | . | . |
| HiC\_scaffold\_6963 | | 5970 | FDR | C | A | intergenic | . | . |
| HiC\_scaffold\_6963 | | 6101 | FDR | A | G | intergenic | . | . |
| HiC\_scaffold\_9280 | | 3448 | FDR | G | A | intergenic | . | . |
| HiC\_scaffold\_9949 | | 52 | FDR | C | T | intergenic | . | . |
| HiC\_scaffold\_10928 | | 3575 | FDR | G | A | downstream; intergenic | CBRO\_00021896; CHR\_START-CBRO\_00021896 | CYP2A10; CHR\_START-CYP2A10 |
| HiC\_scaffold\_11921 | | 5560 | FDR | A | T | intergenic | . | . |
| HiC\_scaffold\_12068 | | 2929 | FDR | G | T | intergenic | . | . |
| **HiC\_scaffold\_12778** | **1456** | | **Bonferroni** | **T** | **A** | **missense** | **CBRO\_00022026** | **COL8A1** |
| HiC\_scaffold\_17578 | | 180 | FDR | T | G | intergenic | . | . |
| **HiC\_scaffold\_18999** | | **1084** | **Bonferroni** | **A** | **G** | **intergenic** | **.** | **.** |

**Supplementary file 1g**

****

**Supplementary file 1h**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Scaffold** | **Position** | **Significance** | **REF** | **ALT** | **Variant Type** | **Gene Identifier** | **Gene Card** |
| HiC\_scaffold\_4 | 8897671 | FDR | A | T | intergenic | CBRO\_00012254-CBRO\_00012255 | Megf10-UNKNOWN |
| HiC\_scaffold\_4 | 16057698 | FDR | C | A | intergenic | CBRO\_00012386-CBRO\_00012387 | CCND2-Mlycd |
| HiC\_scaffold\_4 | 29273446 | FDR | T | C | synonymous | CBRO\_00012620 | CKAP5 |
| HiC\_scaffold\_4 | 29273458 | FDR | C | T | synonymous | CBRO\_00012620 | CKAP5 |
| HiC\_scaffold\_5 | 18259775 | FDR | C | A | upstream; intergenic | CBRO\_00001229; CBRO\_00001229-CBRO\_00001230 | AP1S2; AP1S2-phka2 |
| *HiC\_scaffold\_5* | *18306419* | *FDR* | *C* | *G* | *upstream; intergenic* | *CBRO\_00001232; CBRO\_00001231-CBRO\_00001232* | *xlrs1; PPEF2-xlrs1* |
| *HiC\_scaffold\_5* | *18306428* | *FDR* | *A* | *T* | *upstream; intergenic* | *CBRO\_00001232; CBRO\_00001231-CBRO\_00001232* | *xlrs1; PPEF2-xlrs1* |
| *HiC\_scaffold\_5* | *18307019* | *FDR* | *G* | *T* | *intronic* | *CBRO\_00001232* | *xlrs1* |
| *HiC\_scaffold\_5* | *18307030* | *FDR* | *G* | *A* | *intronic* | *CBRO\_00001232* | *xlrs1* |
| HiC\_scaffold\_5 | 36619253 | FDR | T | C | intergenic | CBRO\_00001583-CBRO\_00001584 | Chst12-ZDHHC13 |
| *HiC\_scaffold\_7* | *13815058* | *FDR* | *A* | *G* | *synonymous; downstream* | *CBRO\_00009805; CBRO\_00009804* | *Aloxe3; UNKNOWN* |
| HiC\_scaffold\_7 | 13823565 | FDR | T | C | intronic | CBRO\_00009806 | Fbxo30 |
| HiC\_scaffold\_7 | 13824467 | FDR | A | G | missense | CBRO\_00009806 | Fbxo30 |
| HiC\_scaffold\_7 | 19371997 | FDR | C | T | upstream; intergenic | CBRO\_00009922; CBRO\_00009921-CBRO\_00009922 | ELOVL4; TENT5A-ELOVL4 |
| HiC\_scaffold\_7 | 19372002 | FDR | T | G | upstream; intergenic | CBRO\_00009922; CBRO\_00009921-CBRO\_00009922 | ELOVL4; TENT5A-ELOVL4 |
| HiC\_scaffold\_8 | 20265076 | FDR | T | C | upstream; intergenic | CBRO\_00010647; CBRO\_00010647-CBRO\_00010648 | Srcin1; Srcin1-Srcin1 |
| HiC\_scaffold\_8 | 20265098 | FDR | G | C | upstream; intergenic | CBRO\_00010647; CBRO\_00010647-CBRO\_00010648 | Srcin1; Srcin1-Srcin1 |
| HiC\_scaffold\_8 | 20278571 | FDR | G | A | intergenic | CBRO\_00010647-CBRO\_00010648 | Srcin1-Srcin1 |
| HiC\_scaffold\_9 | 15585466 | FDR | C | G | missense | CBRO\_00004552 | Tmem260 |
| HiC\_scaffold\_9 | 18453213 | FDR | A | G | intergenic | CBRO\_00004639-CBRO\_00004640 | Bub1b-PAK6 |
| HiC\_scaffold\_9 | 28127377 | FDR | C | T | intergenic | CBRO\_00004857-CBRO\_00004858 | METTL21E-RASA3 |
| HiC\_scaffold\_10 | 193812 | FDR | C | G | intergenic | CBRO\_00018931-CBRO\_00018932 | Spsb4-UNKNOWN |
| HiC\_scaffold\_11 | 25632195 | FDR | C | T | intergenic | CBRO\_00013717-CBRO\_00013718 | CDH10-Cdh6 |
| HiC\_scaffold\_11 | 25632258 | FDR | C | T | intergenic | CBRO\_00013717-CBRO\_00013718 | CDH10-Cdh6 |
| HiC\_scaffold\_11 | 25632641 | FDR | A | G | intergenic | CBRO\_00013717-CBRO\_00013718 | CDH10-Cdh6 |
| HiC\_scaffold\_14 | 14624430 | FDR | T | C | intergenic | CBRO\_00014084-CBRO\_00014085 | KDM6B-FGF11 |
| HiC\_scaffold\_18 | 26970449 | FDR | C | T | intronic | CBRO\_00013239 | CSAD |
| *HiC\_scaffold\_27* | *8137335* | *FDR* | *G* | *T* | *intronic* | *CBRO\_00005998* | *SMARCA4* |
| HiC\_scaffold\_27 | 21919164 | FDR | G | T | synonymous | CBRO\_00006396 | SSTR2 |
| HiC\_scaffold\_29 | 2136546 | FDR | A | T | upstream; intergenic | CBRO\_00016347; CBRO\_00016347-CBRO\_00016348 | RAPGEF6; RAPGEF6-ACSL6 |
| HiC\_scaffold\_29 | 2147361 | FDR | C | T | intergenic | CBRO\_00016347-CBRO\_00016348 | RAPGEF6-ACSL6 |
| HiC\_scaffold\_31 | 6226140 | FDR | A | C | intronic | CBRO\_00017224 | ranbp9 |
| HiC\_scaffold\_34 | 7439419 | FDR | G | T | intergenic | CBRO\_00001828-CBRO\_00001829 | rnf152-CAMTA1 |
| HiC\_scaffold\_34 | 30571660 | FDR | C | A | intronic | CBRO\_00002374 | SHMT2 |
| HiC\_scaffold\_40 | 4693917 | FDR | G | A | intronic | CBRO\_00016589 | SLC37A1 |
| HiC\_scaffold\_40 | 4694015 | FDR | T | C | synonymous | CBRO\_00016589 | SLC37A1 |
| HiC\_scaffold\_40 | 4723358 | FDR | A | G | intronic | CBRO\_00016591 | UBXN4 |
| HiC\_scaffold\_40 | 4732538 | FDR | T | C | intronic | CBRO\_00016591 | UBXN4 |
| HiC\_scaffold\_40 | 4734825 | FDR | G | T | intronic | CBRO\_00016591 | UBXN4 |
| HiC\_scaffold\_40 | 4780518 | FDR | G | C | intronic | CBRO\_00016592 | ITGB2 |
| HiC\_scaffold\_40 | 5016538 | FDR | C | A | upstream; intergenic | CBRO\_00016599; CBRO\_00016599-CBRO\_00016600 | RRP1B; RRP1B-ITGB2 |
| HiC\_scaffold\_43 | 26869231 | FDR | C | G | synonymous | CBRO\_00008677 | lrpprc |
| HiC\_scaffold\_43 | 27800569 | FDR | C | T | downstream; intergenic | CBRO\_00008685; CBRO\_00008685-CBRO\_00008686 | timp3; timp3-ETV6 |
| HiC\_scaffold\_44 | 19344526 | FDR | C | T | intergenic | CBRO\_00007178-CBRO\_00007179 | ATP11C-sox3 |
| HiC\_scaffold\_46 | 16495639 | FDR | G | A | intronic | CBRO\_00007743 | PHLPP1 |
| HiC\_scaffold\_46 | 16510323 | FDR | G | A | intronic | CBRO\_00007743 | PHLPP1 |
| HiC\_scaffold\_46 | 16512668 | FDR | T | A | intronic | CBRO\_00007743 | PHLPP1 |
| **HiC\_scaffold\_46** | **16512886** | **Bonferroni** | **T** | **A** | **intronic** | **CBRO\_00007743** | **PHLPP1** |
| HiC\_scaffold\_46 | 16513809 | FDR | T | C | synonymous | CBRO\_00007743 | PHLPP1 |
| HiC\_scaffold\_52 | 19031083 | FDR | T | A | intergenic | CBRO\_00011872-CBRO\_00011873 | NRP2-MREG |
| HiC\_scaffold\_52 | 19031216 | FDR | A | T | intergenic | CBRO\_00011872-CBRO\_00011873 | NRP2-MREG |
| ***HiC\_scaffold\_1848*** | ***40119*** | ***Bonferroni*** | ***C*** | ***A*** | ***intergenic*** | ***.*** | ***.*** |
| ***HiC\_scaffold\_1848*** | ***40465*** | ***Bonferroni*** | ***T*** | ***A*** | ***intergenic*** | ***.*** | ***.*** |
| *HiC\_scaffold\_1848* | *40590* | *FDR* | *T* | *C* | *intergenic* | *.* | *.* |
| *HiC\_scaffold\_1848* | *40877* | *FDR* | *T* | *C* | *intergenic* | *.* | *.* |
| *HiC\_scaffold\_1848* | *41351* | *FDR* | *T* | *C* | *intergenic* | *.* | *.* |
| **HiC\_scaffold\_7644** | **5971** | **Bonferroni** | **T** | **G** | **intergenic** | **.** | **.** |
| HiC\_scaffold\_12681 | 4019 | FDR | T | C | upstream; intergenic | CBRO\_00022068; CBRO\_00022068-CHR\_END | UNKNOWN; UNKNOWN-CHR\_END |

**Supplementary file 1i**



**Supplementary file 1j**

|  |  |  |  |
| --- | --- | --- | --- |
| **Trait Index** | **Trait Description** | **Trait Shorthand** | **Points** |
| 1 | Nasal protrusion | nose | 3-4 |
| 2 | Nasal length | foresnout | 2-5 |
| 3 | Orbit to anal fin insertion | bellylen | 6-15 |
| 4 | Lateral facial length | snoutlen | 2-6 |
| 5 | Upper jaw to pectoral girdle | jaw2pect | 2-14 |
| 6 | Lateral skull length | pmx2add | 2-11 |
| 7 | Premaxilla length | pmxlen | 2-9 |
| 8 | Lower mandible length | jawlen | 1-9 |
| 9 | Jaw joint to orbit | foreeyewidth | 6-9 |
| 10 | Horizontal orbit diameter | eyewidth | 6-8 |
| 11 | Vertical orbit diameter | eyeht | 7-10 |
| 12 | Head height | headht | 7-9 |
| 13 | Suspensorium length | suspensorium | 9-11 |
| 14 | Adductor height | adductorht | 11-12 |
| 15 | Subopercle to pectoral girdle | ad2pect | 11-14 |
| 16 | Pectoral fin insertion width | pectinsertion | 13-14 |
| 17 | Anal to caudal distance | analtocaudal | 15-16 |
| 18 | Caudal peduncle height | caudalpedht | 16-18 |
| 19 | Dorsal to caudal distance | dorsaltocaudal | 18-19 |
| 20 | Body depth | bodydepth | 15-19 |
| 21 | Nasal protrusion angle | nasalangle | 7-5-3 |
| 22 | Premaxilla to orbit angle | topeyeangle | 7-2-10 |
| 23 | Premaxilla to adductor angle | lowereyeangle | 7-2-11 |
| 24 | Dorsal facial length | dorsalsnoutlen | 23-24, 25-26 |
| 25 | Adductor to premaxilla | eyetosnout | 21-24, 25-28 |
| 26 | Neurocranium to premaxilla | headlen | 24-20, 25-29 |
| 27 | Orbit to premaxilla | innereyetosnout | 22-24, 25-27 |
| 28 | Interorbital width | cranialwidth | 22-27 |
| 29 | Orbital neurocranium width | hindeyewidth | 21-28 |
| 30 | Max. neurocranium width | headwidth | 20-29 |
| 31 | Standard length (SL) | SL | 2-17 |
|  |  |  |  |

**Supplementary file 1k**

|  |  |  |  |
| --- | --- | --- | --- |
| **Model** | **AICc** | **ΔAICc** | **Akaike Weights** |
| *Composite ~ s(LD1, LD2) + Experiment + Lake* | *99.114* | *0.000* | *0.825* |
| Composite ~ s(LD1, LD2) + Experiment \* Lake | 102.210 | 3.096 | 0.175 |
| Composite ~ s(LD1, LD2) + s(LD1) + s(LD2) + Experiment + Lake | 131.456 | 32.342 | < 0.001 |
| Composite ~ s(LD1, LD2) + s(LD1) + s(LD2) + Experiment \* Lake | 135.894 | 36.781 | < 0.001 |
| Composite ~ s(LD1, LD2) + s(LD1, Experiment, bs = "fs") + s(LD2, Experiment, bs = "fs") + Lake | 230.428 | 131.314 | < 0.001 |
| Composite ~ s(LD1, LD2) + s(LD1, Lake, bs = "fs") + s(LD2, Lake, bs = "fs") + Experiment | 230.868 | 131.754 | < 0.001 |

**Supplementary file 1l**

|  |  |  |  |
| --- | --- | --- | --- |
| **Model** | **AICc** | **ΔAICc** | **Akaike Weights** |
| *Growth ~ s(LD1, LD2) + Experiment \* Lake* | *-44.658* | *0.000* | *1* |
| Growth ~ s(LD1, LD2) + Experiment + Lake | 3.904 | 48.562 | < 0.001 |
| Growth ~ s(LD1, LD2) + s(LD1) + s(LD2) + Experiment \* Lake | 46.249 | 90.907 | < 0.001 |
| Growth ~ s(LD1, LD2) + s(LD1) + s(LD2) + Experiment + Lake | 89.121 | 133.779 | < 0.001 |
| Growth ~ s(LD1, LD2) + s(LD1, Lake, bs = "fs") + s(LD2, Lake, bs = "fs") + Experiment | 690.379 | 735.038 | < 0.001 |
| Growth ~ s(LD1, LD2) + s(LD1, Experiment, bs = "fs") + s(LD2, Experiment, bs = "fs") + Lake | 693.748 | 738.406 | < 0.001 |

**Supplementary file 1m**

|  |  |  |  |
| --- | --- | --- | --- |
| **Model** | **AICc** | **ΔAICc** | **Akaike Weights** |
| *Survival ~ s(LD1, LD2) + Experiment + Lake* | *141.057* | *0.000* | *0.849* |
| Survival ~ s(LD1, LD2) + Experiment \* Lake | 144.504 | 3.447 | 0.151 |
| Survival ~ s(LD1, LD2) + s(LD1) + s(LD2) + Experiment + Lake | 173.399 | 32.342 | < 0.001 |
| Survival ~ s(LD1, LD2) + s(LD1) + s(LD2) + Experiment \* Lake | 178.189 | 37.132 | < 0.001 |
| Survival ~ s(LD1, LD2) + s(LD1, Experiment, bs = "fs") + s(LD2, Experiment, bs = "fs") + Lake | 273.547 | 132.490 | < 0.001 |
| Survival ~ s(LD1, LD2) + s(LD1, Lake, bs = "fs") + s(LD2, Lake, bs = "fs") + Experiment | 273.694 | 132.637 | < 0.001 |

**Supplementary file 1n**

|  |  |  |  |
| --- | --- | --- | --- |
| **Model** | **AICc** | **ΔAICc** | **Akaike Weights** |
| *Composite Fitness ~ s(LD1, LD2) + Experiment + Lake + s(Site1) + s(Site2) + s(Site6) + s(Site7) + s(Site8) + s(Site9) + s(Site10)* | *4.586* | *0.000* | *0.999* |
| Composite Fitness ~ s(LD1, LD2) + Experiment + Lake + s(Site1) + s(Site2) + s(Site3) + s(Site4) + s(Site5) + s(Site6) + s(Site7) + s(Site8) + s(Site9) + s(Site10) | 40.876 | 36.290 | < 0.001 |
| Composite Fitness ~ s(LD1, LD2) + Experiment + Lake + s(Site3) | 55.588 | 51.001 | < 0.001 |
| Composite Fitness ~ s(LD1, LD2) + Experiment + Lake + s(Site7) | 58.386 | 53.800 | < 0.001 |
| Composite Fitness ~ s(LD1, LD2) + Experiment + Lake + s(Site4) | 65.453 | 60.867 | < 0.001 |
| Composite Fitness ~ s(LD1, LD2) + Experiment + Lake + s(Site2) | 71.245 | 66.658 | < 0.001 |
| Composite Fitness ~ s(LD1, LD2) + Experiment + Lake + s(Site5) | 72.329 | 67.743 | < 0.001 |
| Composite Fitness ~ s(LD1, LD2) + Experiment + Lake + s(Site1) | 73.671 | 69.085 | < 0.001 |
| Composite Fitness ~ s(LD1, LD2) + Experiment + Lake + s(Site8) | 74.413 | 69.827 | < 0.001 |
| Composite Fitness ~ s(LD1, LD2) + Experiment + Lake + s(Site9) | 74.680 | 70.094 | < 0.001 |
| Composite Fitness ~ s(LD1, LD2) + Experiment + Lake + s(Site10) | 88.977 | 84.391 | < 0.001 |
| Composite Fitness ~ s(LD1, LD2) + Experiment + Lake + s(Site6) | 90.427 | 85.841 | < 0.001 |
| Composite Fitness ~ s(LD1, LD2) + Experiment + Lake | 99.114 | 94.527 | < 0.001 |

Note: Site1 = HiC\_Scaffold\_1:43866598, Site2 = HiC\_Scaffold\_53:11317840, Site3 = HiC\_Scaffold\_46:35151009, Site4 = HiC\_Scaffold\_8:20263964, Site5 = 37:18591438, Site5 = HiC\_Scaffold\_37:18591438, Site6 = HiC\_Scaffold\_24:15964553, Site7 = HiC\_Scaffold\_1848:40590, Site8 = HiC\_Scaffold\_4461:12939, Site9 = HiC\_Scaffold\_12778:1456, Site10 = HiC\_Scaffold\_18999:1084.

**Supplementary file 1o**

|  |  |  |  |
| --- | --- | --- | --- |
| **Model** | **AICc** | **ΔAICc** | **Akaike Weights** |
| Growth ~ s(LD1, LD2) + Experiment \* Lake + s(Site3) + s(Site4) | -67.649 | 0.000 | 0.490 |
| Growth ~ s(LD1, LD2) + Experiment \* Lake + s(Site3) | -65.634 | 2.015 | 0.179 |
| Growth ~ s(LD1, LD2) + Experiment \* Lake + s(Site1) | -64.161 | 3.488 | 0.086 |
| Growth ~ s(LD1, LD2) + Experiment \* Lake + s(Site1) + s(Site3) | -63.926 | 3.723 | 0.076 |
| Growth ~ s(LD1, LD2) + Experiment \* Lake + s(Site1) + s(Site2) | -63.861 | 3.788 | 0.074 |
| Growth ~ s(LD1, LD2) + Experiment \* Lake + s(Site2) + s(Site4) | -63.503 | 4.146 | 0.062 |
| Growth ~ s(LD1, LD2) + Experiment \* Lake + s(Site2) | -61.849 | 5.800 | 0.027 |
| Growth ~ s(LD1, LD2) + Experiment \* Lake + s(Site1) + s(Site4) | -58.044 | 9.604 | 0.004 |
| Growth ~ s(LD1, LD2) + Experiment \* Lake + s(Site4) | -56.068 | 11.581 | 0.001 |
| Growth ~ s(LD1, LD2) + Experiment \* Lake + s(Site1) + s(Site3) + s(Site4) | -54.878 | 12.770 | < 0.001 |
| Growth ~ s(LD1, LD2) + Experiment \* Lake + s(Site1) + s(Site2) + s(Site4) | -54.509 | 13.140 | < 0.001 |
| Growth ~ s(LD1, LD2) + Experiment \* Lake + s(Site2) + s(Site3) | -47.602 | 20.047 | < 0.001 |
| Growth ~ s(LD1, LD2) + Experiment \* Lake | -44.658 | 22.990 | < 0.001 |
| Growth ~ s(LD1, LD2) + Experiment \* Lake + s(Site1) + s(Site2) + s(Site3) | -41.689 | 25.960 | < 0.001 |
| Growth ~ s(LD1, LD2) + Experiment \* Lake + s(Site1) + s(Site2) + s(Site3) + s(Site4) | -29.801 | 37.847 | < 0.001 |

Note: Site1 = HiC\_Scaffold\_46:16512886, Site2 = HiC\_Scaffold\_1848:40119, Site3 = HiC\_Scaffold\_1848:40465, Site4 = HiC\_Scaffold\_7644:5971

**Supplementary file 1p**

****

**Supplementary file 1q**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Comparison** | **Summary Statistic** | **Mean / SE** | **Mean / SE** | **Odds Ratio: (95% CI)** | **LRT *P*-value** |
| *Molluscivore Network* | *Scale-Eater Network* | *Molluscivore / Scale Eater* |
| **Generalist to Specialist** | *Number of nodes in network* | 22.994 / 0.106 | 31.000 / 0.177 | 0.818: (0.807, 0.829) | < 0.0001 |
| *Number of accessible paths* | 1.105 / 0.007 | 1.268 / 0.018 | 0.515: (0.449, 0.588) | < 0.0001 |
| *Scaled number of accessible paths* | 0.051 / 0.001 | 0.042 / 0.001 | 2.095: (1.934, 2.274) | < 0.0001 |
| *Length of shortest accessible path* | 2.410 / 0.012 | 3.444 / 0.029 | 0.253: (0.231, 0.277) | < 0.0001 |
| **Peaks in Network** | *Number of peaks* | 3.274 / 0.035 | 4.637 / 0.046 | 0.604: (0.575, 0.634) | < 0.0001 |
| *Scaled number of accessible paths to peaks* | 0.095 / 0.001 | 0.087 / 0.001 | 1.514: (1.404, 1.635) | < 0.0001 |
| *Length of shortest accessible path to nearest peak* | 0.823 / 0.022 | 1.482 / 0.029 | 0.539: (0.500, 0.579) | < 0.0001 |

**Supplementary file 1r**

****

**Supplementary file 1s**

