```
% this is ../../crops/18r/planning/current_pedigrees/primary_dominants/les2-_w23
% generated Friday, June 01, 2018 at 21:28:50 UTC (=1527888530.793656) by compute_pedigrees/1.

% Horizontal pedigrees, generations at same indentation.  S: Mo20W; W: W23; M: M14.
% !!! => cross was not by Toni; references to image locations on right.

% W23/Les2-

 06R0020:0000000 x 06R0020:0000000
      06R0020:0002006 x 06R0020:0002002
          06N301:W0004505 x 06N1343:0014509
          06N301:W0005704 x 06N1343:0014508
          06N301:W0006904 x 06N1343:0014506
              07R201:S0027608 x 07R2752:0039005         07R2752:0039005: [07r/gimmel/11.8-[259,260,261]]
                  09R201:S0035402 x 09R1487:0015103         09R1487:0015103: [09r/bet/1.9-[107],09r/bet/23.8-[46]]
                  09R201:S0035403 x 09R1487:0015111         09R1487:0015111: [09r/bet/1.9-[115],09r/bet/23.8-[47]]
                  09R201:S0035416 x 09R1487:0015115         09R1487:0015115: [09r/bet/1.9-[152],09r/gimmel/25.8-[51]
]
                  09R201:S0041402 x 09R1487:0015111         09R1487:0015111: [09r/bet/1.9-[115],09r/bet/23.8-[47]]
                  09R201:S0041404 x 09R1487:0015115         09R1487:0015115: [09r/bet/1.9-[152],09r/gimmel/25.8-[51]
]
                  09R201:S0042309 x 09R1487:0015103         09R1487:0015103: [09r/bet/1.9-[107],09r/bet/23.8-[46]]
                  09R201:S0042311 x 09R1487:0015111         09R1487:0015111: [09r/bet/1.9-[115],09r/bet/23.8-[47]]
                      10R205:S0001701 x 10R2209:0017703         10R2209:0017703: [10r/gimmel/9.8-[48]]
                      10R205:S0001705 x 10R2209:0017706         10R2209:0017706: [10r/gimmel/9.8-[49,50,51]]
                          11N205:S0037001 x 11N3407:0008906
                              12R205:S0000416 x 12R3570:0020008         12R3570:0020008: [12r/aleph/17.8-[2315,23
17],12r/bet/6.8-[72],12r/bet/8.8-[130]]
                              12R205:S0002203 x 12R3570:0020009         12R3570:0020009: [12r/aleph/17.8-[2320,23
23,2326],12r/bet/6.8-[73]]
                                  12N205:S0035803 x 12N3921:0011913
                                  12N205:S0035806 x 12N3921:0011902
                                  12N205:S0038508 x 12N3921:0011908
                                      13R4080:0005013 x 13R4080:0005014         13R4080:0005014: [13r/bet/1.8-[
1741],13r/bet/12.7-[1086],13r/bet/16.7-[1197],13r/bet/19.7-[1344],13r/bet/22.7-[1478],13r/bet/27.7-[1628]]
                                      13R4080:0005014 x 13R4080:0005014         13R4080:0005014: [13r/bet/1.8-[
1741],13r/bet/12.7-[1086],13r/bet/16.7-[1197],13r/bet/19.7-[1344],13r/bet/22.7-[1478],13r/bet/27.7-[1628]] 13R4080:0005014
: [13r/bet/1.8-[1741],13r/bet/12.7-[1086],13r/bet/16.7-[1197],13r/bet/19.7-[1344],13r/bet/22.7-[1478],13r/bet/27.7-[1628]]
                                      13R4080:0005015 x 13R4080:0005014         13R4080:0005014: [13r/bet/1.8-[
1741],13r/bet/12.7-[1086],13r/bet/16.7-[1197],13r/bet/19.7-[1344],13r/bet/22.7-[1478],13r/bet/27.7-[1628]]
                                          14R4080:0008508 x 14R4080:0008505         14R4080:0008505: [14r/bet/17.8-
[2162]]
                                          14R4080:0008509 x 14R4080:0008505         14R4080:0008505: [14r/bet/17.8-
[2162]]
                                          14R4080:0008510 x 14R4080:0008505         14R4080:0008505: [14r/bet/17.8-
[2162]]
                                          14R4080:0008512 x 14R4080:0008505         14R4080:0008505: [14r/bet/17.8-
```

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[2162]]
                                    14R4080:0008513 x 14R4080:0008505        14R4080:0008505: [14r/bet/17.8-
[2162]]
                                    14R4080:0008516 x 14R4080:0008505        14R4080:0008505: [14r/bet/17.8-
[2162]]
                                    14R505:B0002303 x 14R4080:0008505        14R4080:0008505: [14r/bet/17.8-
[2162]]
                                    14R505:B0002314 x 14R4080:0008505        14R4080:0008505: [14r/bet/17.8-
[2162]]
                              12R205:S0004001 x 12R3570:0020009        12R3570:0020009: [12r/aleph/17.8-[2320,23
23,2326],12r/bet/6.8-[73]]
                              12R3570:0020008 x 12R3570:0020008        12R3570:0020008: [12r/aleph/17.8-[2315,23
17],12r/bet/6.8-[72],12r/bet/8.8-[130]] 12R3570:0020008: [12r/aleph/17.8-[2315,2317],12r/bet/6.8-[72],12r/bet/8.8-[130]]
                              12N3922:0012001 x 12N3922:0012008        12N3922:0012001: [12n/bet/10.1-[648]
]     12N3922:0012008: [12n/bet/10.1-[651]]
                              12R3570:0020009 x 12R3570:0020009        12R3570:0020009: [12r/aleph/17.8-[2320,23
23,2326],12r/bet/6.8-[73]] 12R3570:0020009: [12r/aleph/17.8-[2320,2323,2326],12r/bet/6.8-[73]]
                              12R503:B0012201 x 12R3570:0020009        12R3570:0020009: [12r/aleph/17.8-[2320,23
23,2326],12r/bet/6.8-[73]]
                              12R503:B0012703 x 12R3570:0020008        12R3570:0020008: [12r/aleph/17.8-[2315,23
17],12r/bet/6.8-[72],12r/bet/8.8-[130]]
                              12R503:B0012708 x 12R3570:0020002        12R3570:0020002: [12r/aleph/17.8-[2303,23
06,2309,2312]]
                        11N205:S0039111 x 11N3407:0008908
                        11N205:S0039112 x 11N3407:0008910
                  09R201:S0042316 x 09R1487:0015115        09R1487:0015115: [09r/bet/1.9-[152],09r/gimmel/25.8-[51]
]
               07R301:W0029616 x 07R2752:0039005        07R2752:0039005: [07r/gimmel/11.8-[259,260,261]]
                  09R301:W0044306 x 09R1787:0015203        09R1787:0015203: [09r/bet/1.9-[165],09r/gimmel/25.8-[58]
]
                        10R305:W0002404 x 10R2229:0017801        10R2229:0017801: [10r/gimmel/9.8-[53]]
                        10R305:W0003611 x 10R2229:0017808        10R2229:0017808: [10r/gimmel/9.8-[54]]
                        10R305:W0006204 x 10R2229:0017801        10R2229:0017801: [10r/gimmel/9.8-[53]]
                     11R305:W0052105 x 11R3249:0054802        11R3249:0054802: [11r/aleph/18.8-[1018]]
                        11N305:W0031109 x 11N3408:0009003
                     12N3571:0012501 x 12N3571:0012502
                              13R4109:0011304 x 13R4110:0011603        13R4109:0011304: [13r/bet/6.8-[
1842,1843]]   13R4110:0011603: [13r/bet/17.7-[1246],13r/bet/22.7-[1518],13r/bet/27.7-[1668]]
                              13R4110:0011603 x 13R4109:0011304        13R4110:0011603: [13r/bet/17.7-
[1246],13r/bet/22.7-[1518],13r/bet/27.7-[1668]] 13R4109:0011304: [13r/bet/6.8-[1842,1843]]
                              13R4110:0011606 x 13R4111:0011915        13R4110:0011606: [13r/bet/6.8-[
1838,1839]]
                              13R4110:0011608 x 13R4112:0012303        13R4110:0011608: [13r/bet/17.7-
[1247],13r/bet/22.7-[1519],13r/bet/27.7-[1669]] 13R4112:0012303: [13r/bet/6.8-[1847]]
                              13R4110:0011618 x 13R4112:0012305        13R4110:0011618: [13r/bet/17.7-
[1250],13r/bet/22.7-[1522],13r/bet/27.7-[1672]]
                              13R4110:0011718 x 13R4111:0012101
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                                        13R4110:0011810 x 13R4112:0012401                13R4110:0011810: [13r/bet/17.7-
[1256],13r/bet/22.7-[1528],13r/bet/27.7-[1678]]
                                        13R4111:0012006 x 13R4110:0011810                13R4110:0011810: [13r/bet/17.7-
[1256],13r/bet/22.7-[1528],13r/bet/27.7-[1678]]
                                        13R4111:0012101 x 13R4110:0011718
                                        13R4112:0012303 x 13R4110:0011608                13R4112:0012303: [13r/bet/6.8-[
1847]]       13R4110:0011608: [13r/bet/17.7-[1247],13r/bet/22.7-[1519],13r/bet/27.7-[1669]]
                                        13R4112:0012305 x 13R4110:0011618                13R4110:0011618: [13r/bet/17.7-
[1250],13r/bet/22.7-[1522],13r/bet/27.7-[1672]]
                                        12N3571:0012506 x 12N3571:0012503
                                        12N3571:0012508 x 12N3571:0012504
                                        12N504:B0039702 x 12N3571:0012504
                                        12N504:B0039804 x 12N3571:0012503
                                        12N504:B0040501 x 12N3571:0012502
                                        12R3571:0020102 x 12R3571:0020102                12R3571:0020102: [12r/bet/6.8-[74],1
2r/bet/8.8-[131]] 12R3571:0020102: [12r/bet/6.8-[74],12r/bet/8.8-[131]]
                                        12N305:W0036206 x 12N3925:0012912
                                        12N305:W0036209 x 12N3925:0012909
                                        12N3925:0012907 x 12N3925:0012902
                                        12R3571:0020104 x 12R3571:0020104                12R3571:0020104: [12r/bet/6.8-[75],1
2r/bet/8.8-[137]] 12R3571:0020104: [12r/bet/6.8-[75],12r/bet/8.8-[137]]
                                        13R3571:0005105 x 13R3571:0005102                13R3571:0005105: [13r/bet/12.7-[1089
],13r/bet/16.7-[1200],13r/bet/19.7-[1355],13r/bet/22.7-[1481],13r/bet/27.7-[1631]] 13R3571:0005102: [13r/bet/12.7-[1088],1
3r/bet/16.7-[1199],13r/bet/19.7-[1354],13r/bet/22.7-[1480],13r/bet/27.7-[1630]]
                                        14R3571:0008601 x 14R3571:0008613                14R3571:0008613: [14r/bet/17.8-[2164
]]
                                        14R3571:0008602 x 14R3571:0008613                14R3571:0008613: [14r/bet/17.8-[2164
]]
                                        14R3571:0008603 x 14R3571:0008616                14R3571:0008616: [14r/bet/17.8-[2169
]]
                                        14R3571:0008604 x 14R3571:0008616                14R3571:0008616: [14r/bet/17.8-[2169
]]
                                        14R3571:0008607 x 14R3571:0008616                14R3571:0008616: [14r/bet/17.8-[2169
]]
                                        14R3571:0008609 x 14R3571:0008616                14R3571:0008616: [14r/bet/17.8-[2169
]]
                                        14R3571:0008610 x 14R3571:0008616                14R3571:0008616: [14r/bet/17.8-[2169
]]
                                        14R3571:0008612 x 14R3571:0008616                14R3571:0008616: [14r/bet/17.8-[2169
]]
                                        14R3571:0008614 x 14R3571:0008616                14R3571:0008616: [14r/bet/17.8-[2169
]]
                                        14R3571:0008616 x 14R3571:0008616                14R3571:0008616: [14r/bet/17.8-[2169
]]     14R3571:0008616: [14r/bet/17.8-[2169]]
                                        14R3571:0008617 x 14R3571:0008616                14R3571:0008616: [14r/bet/17.8-[2169
]]
                                        14R3571:0008618 x 14R3571:0008616                14R3571:0008616: [14r/bet/17.8-[2169
```

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]]
                              11N305:W0031110 x 11N3408:0009005
                              11N305:W0031112 x 11N3408:0009009
                              11N3408:0009003 x 11N3408:0009003
                                  12N305:W0036201 x 12N3572:0012601
                                  12N305:W0036211 x 12N3572:0012612
                                  12N305:W0036802 x 12N3572:0012608
                                  12N3572:0012610 x 12N3572:0012603
                              11N3408:0009005 x 11N3408:0009005
                                  12N305:W0036212 x 12N3573:0012702
                              11N3408:0009009 x 11N3408:0009009
                                  12N305:W0036213 x 12N3574:0012806
             07R401:M0025509 x 07R2752:0039005            07R2752:0039005: [07r/gimmel/11.8-[259,260,261]]
                  09R401:M0042702 x 09R2022:0015306            09R2022:0015306: [09r/bet/1.9-[192]]
                  09R401:M0044103 x 09R2022:0015304            09R2022:0015304: [09r/bet/1.9-[174]]
                  09R401:M0044108 x 09R2022:0015305            09R2022:0015305: [09r/bet/1.9-[181]]
                    10R405:M0000411 x 10R2230:0017902            10R2230:0017902: [10r/gimmel/9.8-[56]]
                       11N405:M0031303 x 11N3250:0009103
                       11N405:M0031306 x 11N3250:0009103
                          12R3575:0020504 x 12R3575:0020504            12R3575:0020504: [12r/bet/6.8-[76],12r/be
t/8.8-[139]] 12R3575:0020504: [12r/bet/6.8-[76],12r/bet/8.8-[139]]
                          12R3575:0020505 x 12R3575:0020505            12R3575:0020505: [12r/bet/6.8-[77],12r/be
t/8.8-[140]] 12R3575:0020505: [12r/bet/6.8-[77],12r/bet/8.8-[140]]
                          12R3575:0020507 x 12R3575:0020507            12R3575:0020507: [12r/bet/6.8-[78],12r/be
t/8.8-[141]] 12R3575:0020507: [12r/bet/6.8-[78],12r/bet/8.8-[141]]
                          12R405:M0007001 x 12R3575:0020504            12R3575:0020504: [12r/bet/6.8-[76],12r/be
t/8.8-[139]]
                          12R405:M0007007 x 12R3575:0020507            12R3575:0020507: [12r/bet/6.8-[78],12r/be
t/8.8-[141]]
                          12R405:M0007010 x 12R3575:0020505            12R3575:0020505: [12r/bet/6.8-[77],12r/be
t/8.8-[140]]
                              13R405:M0002602 x 13R4081:0005403            13R4081:0005403: [13r/bet/1.8-[1735]
,13r/bet/12.7-[1103],13r/bet/16.7-[1213],13r/bet/19.7-[1368],13r/bet/22.7-[1494],13r/bet/27.7-[1644]]
                                  14R4226:0009003 x 14R4226:0009011            14R4226:0009011: [14r/bet/17.8-
[2168]]
                                  14R4226:0009005 x 14R4226:0009011            14R4226:0009011: [14r/bet/17.8-
[2168]]
                                  14R4226:0009006 x 14R4226:0009011            14R4226:0009011: [14r/bet/17.8-
[2168]]
                                  14R4226:0009007 x 14R4226:0009011            14R4226:0009011: [14r/bet/17.8-
[2168]]
                                  14R4226:0009009 x 14R4226:0009011            14R4226:0009011: [14r/bet/17.8-
[2168]]
                                  14R4226:0009012 x 14R4226:0009011            14R4226:0009011: [14r/bet/17.8-
[2168]]
                                  14R4226:0009013 x 14R4226:0009011            14R4226:0009011: [14r/bet/17.8-
[2168]]
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                                        14R505:B0002012 x 14R4226:0009011            14R4226:0009011: [14r/bet/17.8-
[2168]]
                                     13R405:M0002603 x 13R4081:0005403            13R4081:0005403: [13r/bet/1.8-[1735]
,13r/bet/12.7-[1103],13r/bet/16.7-[1213],13r/bet/19.7-[1368],13r/bet/22.7-[1494],13r/bet/27.7-[1644]]
                                     13R405:M0002604 x 13R4081:0005403            13R4081:0005403: [13r/bet/1.8-[1735]
,13r/bet/12.7-[1103],13r/bet/16.7-[1213],13r/bet/19.7-[1368],13r/bet/22.7-[1494],13r/bet/27.7-[1644]]
                                  11N405:M0031309 x 11N3250:0009103
                                  11R405:M0051309 x 11R3250:0054904            11R3250:0054904: [11r/aleph/18.8-[1027]]
                               10R405:M0006907 x 10R2230:0017908         10R2230:0017908: [10r/gimmel/9.8-[57]]
             06N301:W0007510 x 06N1343:0014511
                07R201:S0025301 x 07R2748:0039402
                07R301:W0025110 x 07R2748:0039402
                07R301:W0029610 x 07R2748:0039402
                07R401:M0029411 x 07R2748:0039404
                07R401:M0029412 x 07R2748:0039402
             06N301:W0007804 x 06N1343:0014502
                07R201:S0028203 x 07R2753:0038902            07R2753:0038902: [07r/gimmel/11.8-[256,257,258]]
                07R201:S0034304 x 07R2753:0038902            07R2753:0038902: [07r/gimmel/11.8-[256,257,258]]
                07R301:W0028112 x 07R2753:0038902            07R2753:0038902: [07r/gimmel/11.8-[256,257,258]]
                07R301:W0034402 x 07R2753:0038902            07R2753:0038902: [07r/gimmel/11.8-[256,257,258]]
                07R401:M0029402 x 07R2753:0038904
                07R401:M0034503 x 07R2753:0038902            07R2753:0038902: [07r/gimmel/11.8-[256,257,258]]
             06N301:W0008403 x 06N1343:0014501
                07R301:W0028107 x 07R2754:0038808            07R2754:0038808: [07r/gimmel/11.8-[253,254,255]]
                07R401:M0029404 x 07R2754:0038808            07R2754:0038808: [07r/gimmel/11.8-[253,254,255]]
             06N301:W0008404 x 06N1343:0014507
          06R0020:0002007 x 06R0020:0002003
             06N201:S0013704 x 06N1342:0014404
             06N301:W0005702 x 06N1342:0014404
                07R201:S0029811 x 07R2758:0039501
                07R301:W0027809 x 07R2758:0039501
                07R301:W0029909 x 07R2758:0039501
             06N301:W0005703 x 06N1342:0014410
             06N301:W0009903 x 06N1342:0014410
          06R0020:0002008 x 06R0020:0002011
             06N301:W0008407 x 06N1344:0014604
                07R201:S0027006 x 07R2761:0039810
                07R301:W0022401 x 07R2761:0039810
                07R301:W0034411 x 07R2761:0039810
                07R401:M0032501 x 07R2761:0039810
             06N301:W0011102 x 06N1344:0014606
             06N301:W0011109 x 06N1344:0014612
          06R300:W00I7713 x 06R0020:0002009
                07R201:S0034615 x 07R1303:0039703
                07R301:W0034412 x 07R1303:0039703
                07R401:M0032504 x 07R1303:0039703
                07R401:M0034505 x 07R1303:0039703
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06R400:M00I7803 x 06R0020:0002003
06R400:M00I7807 x 06R0020:0002009
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