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```
<?xml version="1.0" standalone="yes"?>

<!-- Generated by BEAUTi v1.6.1 -->
<!-- by Alexei J. Drummond and Andrew Rambaut -->
<!-- Department of Computer Science, University of Auckland and -->
<!-- Institute of Evolutionary Biology, University of Edinburgh -->
<!-- http://beast.bio.ed.ac.uk/ -->
<beast>

<!-- The list of taxa analyse (can also include dates/ages). -->
<!-- ntax=211 -->
<taxa id="taxa">
    ****DATA section removed to reduce file size****

</alignment>

<!-- The unique patterns from 1 to end -->
<!-- npatterns=48 -->
<patterns id="A_neuq_mt_chubut.patterns" from="1">
    <alignment idref="alignment1"/>
</patterns>

<!-- The unique patterns from 1 to end -->
<!-- npatterns=6 -->
<patterns id="A_neuq_nu_ANT_Chubut.patterns" from="1">
    <alignment idref="alignment2"/>
</patterns>

<!-- The unique patterns from 1 to end -->
<!-- npatterns=4 -->
<patterns id="A_neuq_nu_EF1Exon_Chubut.patterns" from="1">
    <alignment idref="alignment3"/>
</patterns>

<!-- The unique patterns from 1 to end -->
<!-- npatterns=7 -->
<patterns id="A_neuq_nu_EF1Intron_Chubut.patterns" from="1">
    <alignment idref="alignment4"/>
</patterns>

<!-- This is a simple constant population size coalescent model -->
<!-- that is used to generate an initial tree for the chain. -->
<constantSize id="initialDemo" units="substitutions">
    <populationSize>
        <parameter id="initialDemo.popSize" value="100.0"/>
    </populationSize>
</constantSize>

<!-- Generate a random starting tree under the coalescent process -->
<coalescentTree id="A_neuq_mt_chubut.startingTree" rootHeight="0.017">
    <taxa idref="A_neuq_mt_chubut.taxa"/>
    <constantSize idref="initialDemo"/>
</coalescentTree>

<!-- Generate a random starting tree under the coalescent process -->
<coalescentTree id="A_neuq_nu_ANT_Chubut.startingTree" rootHeight="0.0012">
    <taxa idref="A_neuq_nu_ANT_Chubut.taxa"/>
```

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<constantSize idref="initialDemo" />
</coalescentTree>

<!-- Generate a random starting tree under the coalescent process -->
<coalescentTree id="A_neuq_nu_EF1Exon_Chubut.startingTree" rootHeight="0.0">
    <taxa idref="A_neuq_nu_EF1Exon_Chubut.taxa" />
    <constantSize idref="initialDemo" />
</coalescentTree>

<!-- Generate a random starting tree under the coalescent process -->
<coalescentTree id="A_neuq_nu_EF1Intron_Chubut.startingTree" rootHeight="0.0">
    <taxa idref="A_neuq_nu_EF1Intron_Chubut.taxa" />
    <constantSize idref="initialDemo" />
</coalescentTree>

<!-- Generate a tree model -->
<treeModel id="A_neuq_mt_chubut.treeModel">
    <coalescentTree idref="A_neuq_mt_chubut.startingTree" />
    <rootHeight>
        <parameter id="A_neuq_mt_chubut.treeModel.rootHeight" />
    </rootHeight>
    <nodeHeights internalNodes="true">
        <parameter id="A_neuq_mt_chubut.treeModel.internalNodeHeights" />
    </nodeHeights>
    <nodeHeights internalNodes="true" rootNode="true">
        <parameter id="A_neuq_mt_chubut.treeModel.allInternalNodeHeights" />
    </nodeHeights>
</treeModel>

<!-- Generate a tree model -->
<treeModel id="A_neuq_nu_ANT_Chubut.treeModel">
    <coalescentTree idref="A_neuq_nu_ANT_Chubut.startingTree" />
    <rootHeight>
        <parameter id="A_neuq_nu_ANT_Chubut.treeModel.rootHeight" />
    </rootHeight>
    <nodeHeights internalNodes="true">
        <parameter id="A_neuq_nu_ANT_Chubut.treeModel.internalNodeHeights" />
    </nodeHeights>
    <nodeHeights internalNodes="true" rootNode="true">
        <parameter id="A_neuq_nu_ANT_Chubut.treeModel.allInternalNodeHeights" />
    </nodeHeights>
</treeModel>

<!-- Generate a tree model -->
<treeModel id="A_neuq_nu_EF1Exon_Chubut.treeModel">
    <coalescentTree idref="A_neuq_nu_EF1Exon_Chubut.startingTree" />
    <rootHeight>
        <parameter id="A_neuq_nu_EF1Exon_Chubut.treeModel.rootHeight" />
    </rootHeight>
    <nodeHeights internalNodes="true">
        <parameter id="A_neuq_nu_EF1Exon_Chubut.treeModel.internalNodeHeights" />
    </nodeHeights>
    <nodeHeights internalNodes="true" rootNode="true">
        <parameter id="A_neuq_nu_EF1Exon_Chubut.treeModel.allInternalNodeHeights" />
    </nodeHeights>
</treeModel>
```

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<!-- Generate a tree model -->
<treeModel id="A_neuq_nu_EF1Intron_Chubut.treeModel">
  <coalescentTree idref="A_neuq_nu_EF1Intron_Chubut.startingTree"/>
  <rootHeight>
    <parameter id="A_neuq_nu_EF1Intron_Chubut.treeModel.rootHeight"/>
  </rootHeight>
  <nodeHeights internalNodes="true">
    <parameter id="A_neuq_nu_EF1Intron_Chubut.treeModel.internalNodeHeights"/>
  </nodeHeights>
  <nodeHeights internalNodes="true" rootNode="true">
    <parameter id="A_neuq_nu_EF1Intron_Chubut.treeModel.allInternalNodeHeights"/>
  </nodeHeights>
</treeModel>

<!-- Generate a variableDemographic for extended Bayesian skyline process -->
<variableDemographic id="demographic" type="linear" useMidpoints="true">
  <populationSizes>
    <!-- popSize value = populationMean value -->
    <parameter id="demographic.popSize" value="1.0"/>
  </populationSizes>
  <indicators>
    <parameter id="demographic.indicators" value="0.0"/>
  </indicators>
  <trees>
    <pmtree ploidy="0.5">
      <treeModel idref="A_neuq_mt_chubut.treeModel"/>
    </pmtree>
    <pmtree ploidy="2.0">
      <treeModel idref="A_neuq_nu_ANT_Chubut.treeModel"/>
    </pmtree>
    <pmtree ploidy="2.0">
      <treeModel idref="A_neuq_nu_EF1Exon_Chubut.treeModel"/>
    </pmtree>
    <pmtree ploidy="2.0">
      <treeModel idref="A_neuq_nu_EF1Intron_Chubut.treeModel"/>
    </pmtree>
  </trees>
</variableDemographic>
<coalescentLikelihood id="coalescent">
  <model>
    <variableDemographic idref="demographic"/>
  </model>
  <!-- Take population Tree from demographic -->
</coalescentLikelihood>
<sumStatistic id="demographic.populationSizeChanges" elementwise="true">
  <parameter idref="demographic.indicators"/>
</sumStatistic>
<exponentialDistributionModel id="demographic.populationMeanDist">
  <mean>
    <!-- prefer populationMean value = 1 -->
    <parameter id="demographic.populationMean" value="1.0"/>
  </mean>
</exponentialDistributionModel>
```

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<!-- The uncorrelated relaxed clock (Drummond, Ho, Phillips & Rambaut, 2006) -->
<discretizedBranchRates id="A_neuq_mt_chubut.branchRates">
    <treeModel idref="A_neuq_mt_chubut.treeModel"/>
    <distribution>
        <logNormalDistributionModel meanInRealSpace="true">
            <mean>
                <parameter id="A_neuq_mt_chubut.ucl.d.mean" value="0.118"/>
            </mean>
            <stdev>
                <parameter id="A_neuq_mt_chubut.ucl.d.stdev" value="0.3333333333333333" lower="0.0" upper="0.6666666666666667"/>
            </stdev>
        </logNormalDistributionModel>
    </distribution>
    <rateCategories>
        <parameter id="A_neuq_mt_chubut.branchRates.categories" dimension="206"/>
    </rateCategories>
</discretizedBranchRates>
<rateStatistic id="A_neuq_mt_chubut.meanRate" name="A_neuq_mt_chubut.meanRate" mode="mean" id="A_neuq_mt_chubut.meanRate">
    <treeModel idref="A_neuq_mt_chubut.treeModel"/>
    <discretizedBranchRates idref="A_neuq_mt_chubut.branchRates"/>
</rateStatistic>
<rateStatistic id="A_neuq_mt_chubut.coefficientOfVariation" name="A_neuq_mt_chubut.coefficientOfVariation" id="A_neuq_mt_chubut.coefficientOfVariation">
    <treeModel idref="A_neuq_mt_chubut.treeModel"/>
    <discretizedBranchRates idref="A_neuq_mt_chubut.branchRates"/>
</rateStatistic>
<rateCovarianceStatistic id="A_neuq_mt_chubut.covariance" name="A_neuq_mt_chubut.covariance" id="A_neuq_mt_chubut.covariance">
    <treeModel idref="A_neuq_mt_chubut.treeModel"/>
    <discretizedBranchRates idref="A_neuq_mt_chubut.branchRates"/>
</rateCovarianceStatistic>

<!-- The uncorrelated relaxed clock (Drummond, Ho, Phillips & Rambaut, 2006) -->
<discretizedBranchRates id="A_neuq_nu_ANT_Chubut.branchRates">
    <treeModel idref="A_neuq_nu_ANT_Chubut.treeModel"/>
    <distribution>
        <logNormalDistributionModel meanInRealSpace="true">
            <mean>
                <parameter id="A_neuq_nu_ANT_Chubut.ucl.d.mean" value="0.1" lower="0.0" upper="0.2"/>
            </mean>
            <stdev>
                <parameter id="A_neuq_nu_ANT_Chubut.ucl.d.stdev" value="0.3333333333333333" lower="0.0" upper="0.6666666666666667"/>
            </stdev>
        </logNormalDistributionModel>
    </distribution>
    <rateCategories>
        <parameter id="A_neuq_nu_ANT_Chubut.branchRates.categories" dimension="98"/>
    </rateCategories>
</discretizedBranchRates>
<rateStatistic id="A_neuq_nu_ANT_Chubut.meanRate" name="A_neuq_nu_ANT_Chubut.meanRate" mode="mean" id="A_neuq_nu_ANT_Chubut.meanRate">
    <treeModel idref="A_neuq_nu_ANT_Chubut.treeModel"/>
    <discretizedBranchRates idref="A_neuq_nu_ANT_Chubut.branchRates"/>
</rateStatistic>
<rateStatistic id="A_neuq_nu_ANT_Chubut.coefficientOfVariation" name="A_neuq_nu_ANT_Chubut.coefficientOfVariation" id="A_neuq_nu_ANT_Chubut.coefficientOfVariation">
    <treeModel idref="A_neuq_nu_ANT_Chubut.treeModel"/>
    <discretizedBranchRates idref="A_neuq_nu_ANT_Chubut.branchRates"/>
</rateStatistic>
<rateCovarianceStatistic id="A_neuq_nu_ANT_Chubut.covariance" name="A_neuq_nu_ANT_Chubut.covariance" id="A_neuq_nu_ANT_Chubut.covariance">
    <treeModel idref="A_neuq_nu_ANT_Chubut.treeModel"/>
    <discretizedBranchRates idref="A_neuq_nu_ANT_Chubut.branchRates"/>
</rateCovarianceStatistic>
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<discretizedBranchRates idref="A_neuq_nu_ANT_Chubut.branchRates"/>
</rateCovarianceStatistic>

<!-- The uncorrelated relaxed clock (Drummond, Ho, Phillips & Rambaut, 2006) -->
<discretizedBranchRates id="A_neuq_nu_EF1Exon_Chubut.branchRates">
    <treeModel idref="A_neuq_nu_EF1Exon_Chubut.treeModel"/>
    <distribution>
        <logNormalDistributionModel meanInRealSpace="true">
            <mean>
                <parameter id="A_neuq_nu_EF1Exon_Chubut.ucl.d.mean" value="0.1" lower="0.0" u
            </mean>
            <stdev>
                <parameter id="A_neuq_nu_EF1Exon_Chubut.ucl.d.stdev" value="0.3333333333333333
            </stdev>
        </logNormalDistributionModel>
    </distribution>
    <rateCategories>
        <parameter id="A_neuq_nu_EF1Exon_Chubut.branchRates.categories" dimension="98"/>
    </rateCategories>
</discretizedBranchRates>
<rateStatistic id="A_neuq_nu_EF1Exon_Chubut.meanRate" name="A_neuq_nu_EF1Exon_Chubut.meanRat
    <treeModel idref="A_neuq_nu_EF1Exon_Chubut.treeModel"/>
    <discretizedBranchRates idref="A_neuq_nu_EF1Exon_Chubut.branchRates"/>
</rateStatistic>
<rateStatistic id="A_neuq_nu_EF1Exon_Chubut.coefficientOfVariation" name="A_neuq_nu_EF1Exon_
    <treeModel idref="A_neuq_nu_EF1Exon_Chubut.treeModel"/>
    <discretizedBranchRates idref="A_neuq_nu_EF1Exon_Chubut.branchRates"/>
</rateStatistic>
<rateCovarianceStatistic id="A_neuq_nu_EF1Exon_Chubut.covariance" name="A_neuq_nu_EF1Exon_C
    <treeModel idref="A_neuq_nu_EF1Exon_Chubut.treeModel"/>
    <discretizedBranchRates idref="A_neuq_nu_EF1Exon_Chubut.branchRates"/>
</rateCovarianceStatistic>

<!-- The uncorrelated relaxed clock (Drummond, Ho, Phillips & Rambaut, 2006) -->
<discretizedBranchRates id="A_neuq_nu_EF1Intron_Chubut.branchRates">
    <treeModel idref="A_neuq_nu_EF1Intron_Chubut.treeModel"/>
    <distribution>
        <logNormalDistributionModel meanInRealSpace="true">
            <mean>
                <parameter id="A_neuq_nu_EF1Intron_Chubut.ucl.d.mean" value="0.1" lower="0.0"
            </mean>
            <stdev>
                <parameter id="A_neuq_nu_EF1Intron_Chubut.ucl.d.stdev" value="0.3333333333333333
            </stdev>
        </logNormalDistributionModel>
    </distribution>
    <rateCategories>
        <parameter id="A_neuq_nu_EF1Intron_Chubut.branchRates.categories" dimension="94"/>
    </rateCategories>
</discretizedBranchRates>
<rateStatistic id="A_neuq_nu_EF1Intron_Chubut.meanRate" name="A_neuq_nu_EF1Intron_Chubut.me
    <treeModel idref="A_neuq_nu_EF1Intron_Chubut.treeModel"/>
    <discretizedBranchRates idref="A_neuq_nu_EF1Intron_Chubut.branchRates"/>
</rateStatistic>
<rateStatistic id="A_neuq_nu_EF1Intron_Chubut.coefficientOfVariation" name="A_neuq_nu_EF1Int
    <treeModel idref="A_neuq_nu_EF1Intron_Chubut.treeModel"/>
    <discretizedBranchRates idref="A_neuq_nu_EF1Intron_Chubut.branchRates"/>
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</rateStatistic>
<rateCovarianceStatistic id="A_neuq_nu_EF1Intron_Chubut.covariance" name="A_neuq_nu_EF1Intro
<treeModel idref="A_neuq_nu_EF1Intron_Chubut.treeModel"/>
<discretizedBranchRates idref="A_neuq_nu_EF1Intron_Chubut.branchRates"/>
</rateCovarianceStatistic>

<!-- The HKY substitution model (Hasegawa, Kishino & Yano, 1985) -->
<HKYModel id="A_neuq_mt_chubut.hky">
    <frequencies>
        <frequencyModel dataType="nucleotide">
            <frequencies>
                <parameter id="A_neuq_mt_chubut.frequencies" value="0.25 0.25 0.25 0.25" />
            </frequencies>
        </frequencyModel>
    </frequencies>
    <kappa>
        <parameter id="A_neuq_mt_chubut.kappa" value="2.0" lower="0.0" upper="Infinity" />
    </kappa>
</HKYModel>

<!-- site model -->
<siteModel id="A_neuq_mt_chubut.siteModel">
    <substitutionModel>
        <HKYModel idref="A_neuq_mt_chubut.hky" />
    </substitutionModel>
    <gammaShape gammaCategories="4">
        <parameter id="A_neuq_mt_chubut.alpha" value="0.5" lower="0.0" upper="1000.0" />
    </gammaShape>
    <proportionInvariant>
        <parameter id="A_neuq_mt_chubut.pInv" value="0.5" lower="0.0" upper="1.0" />
    </proportionInvariant>
</siteModel>

<!-- The general time reversible (GTR) substitution model -->
<gtrModel id="A_neuq_nu_ANT_Chubut.gtr">
    <frequencies>
        <frequencyModel dataType="nucleotide">
            <frequencies>
                <parameter id="A_neuq_nu_ANT_Chubut.frequencies" value="0.25 0.25 0.25 0.25" />
            </frequencies>
        </frequencyModel>
    </frequencies>
    <rateAC>
        <parameter id="A_neuq_nu_ANT_Chubut.ac" value="1.0" lower="0.0" upper="Infinity" />
    </rateAC>
    <rateAG>
        <parameter id="A_neuq_nu_ANT_Chubut.ag" value="1.0" lower="0.0" upper="Infinity" />
    </rateAG>
    <rateAT>
        <parameter id="A_neuq_nu_ANT_Chubut.at" value="1.0" lower="0.0" upper="Infinity" />
    </rateAT>
    <rateCG>
        <parameter id="A_neuq_nu_ANT_Chubut.cg" value="1.0" lower="0.0" upper="Infinity" />
    </rateCG>
    <rateGT>
        <parameter id="A_neuq_nu_ANT_Chubut.gt" value="1.0" lower="0.0" upper="Infinity" />
    </rateGT>
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</gtrModel>

<!-- site model -->
<siteModel id="A_neuq_nu_ANT_Chubut.siteModel">
    <substitutionModel>
        <gtrModel idref="A_neuq_nu_ANT_Chubut.gtr"/>
    </substitutionModel>
    <proportionInvariant>
        <parameter id="A_neuq_nu_ANT_Chubut.pInv" value="0.5" lower="0.0" upper="1.0"/>
    </proportionInvariant>
</siteModel>

<!-- The general time reversible (GTR) substitution model -->
<gtrModel id="A_neuq_nu_EF1Exon_Chubut.gtr">
    <frequencies>
        <frequencyModel dataType="nucleotide">
            <frequencies>
                <parameter id="A_neuq_nu_EF1Exon_Chubut.frequencies" value="0.25 0.25 0.25 0
                </frequencies>
            </frequencyModel>
        </frequencies>
        <rateAC>
            <parameter id="A_neuq_nu_EF1Exon_Chubut.ac" value="1.0" lower="0.0" upper="Infinity"
        </rateAC>
        <rateAG>
            <parameter id="A_neuq_nu_EF1Exon_Chubut.ag" value="1.0" lower="0.0" upper="Infinity"
        </rateAG>
        <rateAT>
            <parameter id="A_neuq_nu_EF1Exon_Chubut.at" value="1.0" lower="0.0" upper="Infinity"
        </rateAT>
        <rateCG>
            <parameter id="A_neuq_nu_EF1Exon_Chubut.cg" value="1.0" lower="0.0" upper="Infinity"
        </rateCG>
        <rateGT>
            <parameter id="A_neuq_nu_EF1Exon_Chubut.gt" value="1.0" lower="0.0" upper="Infinity"
        </rateGT>
    </gtrModel>

    <!-- site model -->
    <siteModel id="A_neuq_nu_EF1Exon_Chubut.siteModel">
        <substitutionModel>
            <gtrModel idref="A_neuq_nu_EF1Exon_Chubut.gtr"/>
        </substitutionModel>
    </siteModel>

    <!-- The general time reversible (GTR) substitution model -->
    <gtrModel id="A_neuq_nu_EF1Intron_Chubut.gtr">
        <frequencies>
            <frequencyModel dataType="nucleotide">
                <frequencies>
                    <parameter id="A_neuq_nu_EF1Intron_Chubut.frequencies" value="0.25 0.25 0.25
                    </frequencies>
                </frequencyModel>
            </frequencies>
            <rateAC>
                <parameter id="A_neuq_nu_EF1Intron_Chubut.ac" value="1.0" lower="0.0" upper="Infini
            </rateAC>
```

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<rateAG>
    <parameter id="A_neuq_nu_EF1Intron_Chubut.ag" value="1.0" lower="0.0" upper="Infinit
</rateAG>
<rateAT>
    <parameter id="A_neuq_nu_EF1Intron_Chubut.at" value="1.0" lower="0.0" upper="Infinit
</rateAT>
<rateCG>
    <parameter id="A_neuq_nu_EF1Intron_Chubut.cg" value="1.0" lower="0.0" upper="Infinit
</rateCG>
<rateGT>
    <parameter id="A_neuq_nu_EF1Intron_Chubut.gt" value="1.0" lower="0.0" upper="Infinit
</rateGT>
</gtrModel>


<!-- site model
<siteModel id="A_neuq_nu_EF1Intron_Chubut.siteModel">
    <substitutionModel>
        <gtrModel idref="A_neuq_nu_EF1Intron_Chubut.gtr"/>
    </substitutionModel>
</siteModel>
<treeLikelihood id="A_neuq_mt_chubut.treeLikelihood" useAmbiguities="false">
    <patterns idref="A_neuq_mt_chubut.patterns"/>
    <treeModel idref="A_neuq_mt_chubut.treeModel"/>
    <siteModel idref="A_neuq_mt_chubut.siteModel"/>
    <discretizedBranchRates idref="A_neuq_mt_chubut.branchRates"/>
</treeLikelihood>
<treeLikelihood id="A_neuq_nu_ANT_Chubut.treeLikelihood" useAmbiguities="false">
    <patterns idref="A_neuq_nu_ANT_Chubut.patterns"/>
    <treeModel idref="A_neuq_nu_ANT_Chubut.treeModel"/>
    <siteModel idref="A_neuq_nu_ANT_Chubut.siteModel"/>
    <discretizedBranchRates idref="A_neuq_nu_ANT_Chubut.branchRates"/>
</treeLikelihood>
<treeLikelihood id="A_neuq_nu_EF1Exon_Chubut.treeLikelihood" useAmbiguities="false">
    <patterns idref="A_neuq_nu_EF1Exon_Chubut.patterns"/>
    <treeModel idref="A_neuq_nu_EF1Exon_Chubut.treeModel"/>
    <siteModel idref="A_neuq_nu_EF1Exon_Chubut.siteModel"/>
    <discretizedBranchRates idref="A_neuq_nu_EF1Exon_Chubut.branchRates"/>
</treeLikelihood>
<treeLikelihood id="A_neuq_nu_EF1Intron_Chubut.treeLikelihood" useAmbiguities="false">
    <patterns idref="A_neuq_nu_EF1Intron_Chubut.patterns"/>
    <treeModel idref="A_neuq_nu_EF1Intron_Chubut.treeModel"/>
    <siteModel idref="A_neuq_nu_EF1Intron_Chubut.siteModel"/>
    <discretizedBranchRates idref="A_neuq_nu_EF1Intron_Chubut.branchRates"/>
</treeLikelihood>

<!-- Define operators
&lt;operators id="operators"&gt;
    &lt;scaleOperator scaleFactor="0.75" weight="0.1"&gt;
        &lt;parameter idref="A_neuq_mt_chubut.kappa"/&gt;
    &lt;/scaleOperator&gt;
    &lt;deltaExchange delta="0.01" weight="0.1"&gt;
        &lt;parameter idref="A_neuq_mt_chubut.frequencies"/&gt;
    &lt;/deltaExchange&gt;
    &lt;scaleOperator scaleFactor="0.75" weight="0.1"&gt;
        &lt;parameter idref="A_neuq_mt_chubut.alpha"/&gt;
    &lt;/scaleOperator&gt;
    &lt;scaleOperator scaleFactor="0.75" weight="0.1"&gt;</pre>
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```
<parameter idref="A_neuq_mt_chubut.pInv"/>
</scaleOperator>
<scaleOperator scaleFactor="0.75" weight="0.1">
    <parameter idref="A_neuq_nu_ANT_Chubut.ac"/>
</scaleOperator>
<scaleOperator scaleFactor="0.75" weight="0.1">
    <parameter idref="A_neuq_nu_ANT_Chubut.ag"/>
</scaleOperator>
<scaleOperator scaleFactor="0.75" weight="0.1">
    <parameter idref="A_neuq_nu_ANT_Chubut.at"/>
</scaleOperator>
<scaleOperator scaleFactor="0.75" weight="0.1">
    <parameter idref="A_neuq_nu_ANT_Chubut.cg"/>
</scaleOperator>
<scaleOperator scaleFactor="0.75" weight="0.1">
    <parameter idref="A_neuq_nu_ANT_Chubut.gt"/>
</scaleOperator>
<deltaExchange delta="0.01" weight="0.1">
    <parameter idref="A_neuq_nu_ANT_Chubut.frequencies"/>
</deltaExchange>
<scaleOperator scaleFactor="0.75" weight="0.1">
    <parameter idref="A_neuq_nu_ANT_Chubut.pInv"/>
</scaleOperator>
<deltaExchange delta="0.01" weight="0.1">
    <parameter idref="A_neuq_nu_EF1Intron_Chubut.frequencies"/>
</deltaExchange>
<scaleOperator scaleFactor="0.75" weight="3">
    <parameter idref="A_neuq_mt_chubut.uclD.stdev"/>
</scaleOperator>
<scaleOperator scaleFactor="0.75" weight="3">
    <parameter idref="A_neuq_nu_ANT_Chubut.uclD.mean"/>
</scaleOperator>
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    <parameter idref="A_neuq_nu_ANT_Chubut.uclD.stdev"/>
</scaleOperator>
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    <parameter idref="A_neuq_nu_EF1Exon_Chubut.uclD.mean"/>
</scaleOperator>
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    <parameter idref="A_neuq_nu_EF1Exon_Chubut.uclD.stdev"/>
</scaleOperator>
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    <parameter idref="A_neuq_nu_EF1Intron_Chubut.uclD.mean"/>
</scaleOperator>
<scaleOperator scaleFactor="0.75" weight="3">
    <parameter idref="A_neuq_nu_EF1Intron_Chubut.uclD.stdev"/>
</scaleOperator>
<upDownOperator scaleFactor="0.75" weight="30">
    <up>
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        <parameter idref="A_neuq_nu_EF1Exon_Chubut.uclD.mean"/>
        <parameter idref="A_neuq_nu_EF1Intron_Chubut.uclD.mean"/>
    </up>
    <down>
        <parameter idref="demographic.popSize"/>
        <parameter idref="A_neuq_mt_chubut.treeModel.allInternalNodeHeights"/>
        <parameter idref="A_neuq_nu_ANT_Chubut.treeModel.allInternalNodeHeights"/>
    </down>

```

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```
<parameter idref="A_neuq_nu_EF1Exon_Chubut.treeModel.allInternalNodeHeights"/>
<parameter idref="A_neuq_nu_EF1Intron_Chubut.treeModel.allInternalNodeHeights"/>
</down>
</upDownOperator>
<subtreeSlide size="0.0017000000000000001" gaussian="true" weight="15">
    <treeModel idref="A_neuq_mt_chubut.treeModel"/>
</subtreeSlide>
<narrowExchange weight="15">
    <treeModel idref="A_neuq_mt_chubut.treeModel"/>
</narrowExchange>
<wideExchange weight="3">
    <treeModel idref="A_neuq_mt_chubut.treeModel"/>
</wideExchange>
<wilsonBalding weight="3">
    <treeModel idref="A_neuq_mt_chubut.treeModel"/>
</wilsonBalding>
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    <parameter idref="A_neuq_mt_chubut.treeModel.rootHeight"/>
</scaleOperator>
<uniformOperator weight="30">
    <parameter idref="A_neuq_mt_chubut.treeModel.internalNodeHeights"/>
</uniformOperator>
<subtreeSlide size="1.199999999999999E-4" gaussian="true" weight="15">
    <treeModel idref="A_neuq_nu_ANT_Chubut.treeModel"/>
</subtreeSlide>
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<wideExchange weight="3">
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</wideExchange>
<wilsonBalding weight="3">
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</scaleOperator>
<uniformOperator weight="30">
    <parameter idref="A_neuq_nu_ANT_Chubut.treeModel.internalNodeHeights"/>
</uniformOperator>
<subtreeSlide size="0.0001" gaussian="true" weight="15">
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</subtreeSlide>
<narrowExchange weight="15">
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</narrowExchange>
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</wideExchange>
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    <parameter idref="A_neuq_nu_EF1Exon_Chubut.treeModel.rootHeight"/>
</scaleOperator>
<uniformOperator weight="30">
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</uniformOperator>
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<wilsonBalding weight="3">
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</uniformOperator>
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</scaleOperator>
<sampleNonActiveOperator weight="15">
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    </distribution>
    <data>
        <parameter idref="demographic.popSize"/>
    </data>
    <indicators>
        <parameter idref="demographic.indicators"/>
    </indicators>
</sampleNonActiveOperator>
<bitFlipOperator weight="30">
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</bitFlipOperator>
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    <up>
    </up>
    <down>
        <parameter idref="A_neuq_mt_chubut.treeModel.allInternalNodeHeights"/>
    </down>
</upDownOperator>
<swapOperator size="1" weight="10" autoOptimize="false">
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</swapOperator>
<randomWalkIntegerOperator windowSize="1" weight="10">
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<uniformIntegerOperator weight="10">
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</uniformIntegerOperator>
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    </up>
    <down>
        <parameter idref="A_neuq_nu_ANT_Chubut.treeModel.allInternalNodeHeights"/>
    </down>
</upDownOperator>
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<upDownOperator scaleFactor="0.75" weight="3">
    <up>
        <parameter idref="A_neuq_nu_EF1Exon_Chubut.uclu.mean"/>
    </up>
    <down>
        <parameter idref="A_neuq_nu_EF1Exon_Chubut.treeModel.allInternalNodeHeights"/>
    </down>
</upDownOperator>
<swapOperator size="1" weight="10" autoOptimize="false">
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<uniformIntegerOperator weight="10">
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</uniformIntegerOperator>
<upDownOperator scaleFactor="0.75" weight="3">
    <up>
        <parameter idref="A_neuq_nu_EF1Intron_Chubut.uclu.mean"/>
    </up>
    <down>
        <parameter idref="A_neuq_nu_EF1Intron_Chubut.treeModel.allInternalNodeHeights"/>
    </down>
</upDownOperator>
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</swapOperator>
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</randomWalkIntegerOperator>
<uniformIntegerOperator weight="10">
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</uniformIntegerOperator>
</operators>

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    <posterior id="posterior">
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<prior id="prior">
  <logNormalPrior mean="1.0" stdev="1.25" offset="0.0" meanInRealSpace="false">
    <parameter idref="A_neuq_mt_chubut.kappa"/>
  </logNormalPrior>
  <gammaPrior shape="0.05" scale="10.0" offset="0.0">
    <parameter idref="A_neuq_nu_ANT_Chubut.ac"/>
  </gammaPrior>
  <gammaPrior shape="0.05" scale="20.0" offset="0.0">
    <parameter idref="A_neuq_nu_ANT_Chubut.ag"/>
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  <gammaPrior shape="0.05" scale="10.0" offset="0.0">
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  <gammaPrior shape="0.05" scale="10.0" offset="0.0">
    <parameter idref="A_neuq_nu_ANT_Chubut.cg"/>
  </gammaPrior>
  <gammaPrior shape="0.05" scale="10.0" offset="0.0">
    <parameter idref="A_neuq_nu_ANT_Chubut.gt"/>
  </gammaPrior>
  <gammaPrior shape="0.05" scale="10.0" offset="0.0">
    <parameter idref="A_neuq_nu_EF1Exon_Chubut.ac"/>
  </gammaPrior>
  <gammaPrior shape="0.05" scale="20.0" offset="0.0">
    <parameter idref="A_neuq_nu_EF1Exon_Chubut.ag"/>
  </gammaPrior>
  <gammaPrior shape="0.05" scale="10.0" offset="0.0">
    <parameter idref="A_neuq_nu_EF1Exon_Chubut.at"/>
  </gammaPrior>
  <gammaPrior shape="0.05" scale="10.0" offset="0.0">
    <parameter idref="A_neuq_nu_EF1Exon_Chubut.cg"/>
  </gammaPrior>
  <gammaPrior shape="0.05" scale="10.0" offset="0.0">
    <parameter idref="A_neuq_nu_EF1Exon_Chubut.gt"/>
  </gammaPrior>
  <gammaPrior shape="0.05" scale="10.0" offset="0.0">
    <parameter idref="A_neuq_nu_EF1Intron_Chubut.ac"/>
  </gammaPrior>
  <gammaPrior shape="0.05" scale="20.0" offset="0.0">
    <parameter idref="A_neuq_nu_EF1Intron_Chubut.ag"/>
  </gammaPrior>
  <gammaPrior shape="0.05" scale="10.0" offset="0.0">
    <parameter idref="A_neuq_nu_EF1Intron_Chubut.at"/>
  </gammaPrior>
  <gammaPrior shape="0.05" scale="10.0" offset="0.0">
    <parameter idref="A_neuq_nu_EF1Intron_Chubut.cg"/>
  </gammaPrior>
  <gammaPrior shape="0.05" scale="10.0" offset="0.0">
    <parameter idref="A_neuq_nu_EF1Intron_Chubut.gt"/>
  </gammaPrior>
  <exponentialPrior mean="0.3333333333333333" offset="0.0">
    <parameter idref="A_neuq_mt_chubut.ucl.d.stdev"/>
  </exponentialPrior>
  <exponentialPrior mean="0.3333333333333333" offset="0.0">
    <parameter idref="A_neuq_nu_ANT_Chubut.ucl.d.stdev"/>
  </exponentialPrior>
  <logNormalPrior mean="0.0" stdev="1.0" offset="0.0" meanInRealSpace="false">
    <parameter idref="A_neuq_nu_ANT_Chubut.ucl.d.mean"/>
  </logNormalPrior>
```

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</logNormalPrior>
<exponentialPrior mean="0.3333333333333333" offset="0.0">
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</logNormalPrior>
<exponentialPrior mean="0.3333333333333333" offset="0.0">
    <parameter idref="A_neuq_nu_EF1Intron_Chubut.ucl.d.stdev"/>
</exponentialPrior>
<logNormalPrior mean="0.0" stdev="1.0" offset="0.0" meanInRealSpace="false">
    <parameter idref="A_neuq_nu_EF1Intron_Chubut.ucl.d.mean"/>
</logNormalPrior>
<poissonPrior mean="0.6931471805599453" offset="0.0">
    <statistic idref="demographic.populationSizeChanges"/>
</poissonPrior>
<oneOnXPrior>
    <parameter idref="demographic.populationMean"/>
</oneOnXPrior>
<coalescentLikelihood idref="coalescent"/>
<mixedDistributionLikelihood>
    <distribution0>
        <exponentialDistributionModel idref="demographic.populationMeanDist"/>
    </distribution0>
    <distribution1>
        <exponentialDistributionModel idref="demographic.populationMeanDist"/>
    </distribution1>
    <data>
        <parameter idref="demographic.popSize"/>
    </data>
    <indicators>
        <parameter idref="demographic.indicators"/>
    </indicators>
</mixedDistributionLikelihood>
</prior>
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    <treeLikelihood idref="A_neuq_mt_chubut.treeLikelihood"/>
    <treeLikelihood idref="A_neuq_nu_ANT_Chubut.treeLikelihood"/>
    <treeLikelihood idref="A_neuq_nu_EF1Exon_Chubut.treeLikelihood"/>
    <treeLikelihood idref="A_neuq_nu_EF1Intron_Chubut.treeLikelihood"/>
</likelihood>
</posterior>
<operators idref="operators"/>


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    <column label="Posterior" dp="4" width="12">
        <posterior idref="posterior"/>
    </column>
    <column label="Prior" dp="4" width="12">
        <prior idref="prior"/>
    </column>
    <column label="Likelihood" dp="4" width="12">
        <likelihood idref="likelihood"/>
    </column>
    <column label="A_neuq_mt_chubut.rootHeight" sf="6" width="12">
        <parameter idref="A_neuq_mt_chubut.treeModel.rootHeight"/>
    </column>
-->
```

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```
</column>
<column label="A_neuq_nu_ANT_Chubut.rootHeight" sf="6" width="12">
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</column>
<column label="A_neuq_nu_EF1Exon_Chubut.rootHeight" sf="6" width="12">
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</column>
<column label="A_neuq_nu_EF1Intron_Chubut.rootHeight" sf="6" width="12">
    <parameter idref="A_neuq_nu_EF1Intron_Chubut.treeModel.rootHeight"/>
</column>
<column label="A_neuq_mt_chubut.uclD.mean" sf="6" width="12">
    <parameter idref="A_neuq_mt_chubut.uclD.mean"/>
</column>
<column label="A_neuq_nu_ANT_Chubut.uclD.mean" sf="6" width="12">
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</column>
</log>


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<log id="fileLog" logEvery="2000" fileName="A_neuq_ALL_chubut.log" overwrite="false">
    <posterior idref="posterior"/>
    <prior idref="prior"/>
    <likelihood idref="likelihood"/>
    <parameter idref="A_neuq_mt_chubut.treeModel.rootHeight"/>
    <parameter idref="A_neuq_nu_ANT_Chubut.treeModel.rootHeight"/>
    <parameter idref="A_neuq_nu_EF1Exon_Chubut.treeModel.rootHeight"/>
    <parameter idref="A_neuq_nu_EF1Intron_Chubut.treeModel.rootHeight"/>
    <sumStatistic idref="demographic.populationSizeChanges"/>
    <parameter idref="demographic.populationMean"/>
    <parameter idref="demographic.popSize"/>
    <parameter idref="demographic.indicators"/>
    <parameter idref="A_neuq_mt_chubut.kappa"/>
    <parameter idref="A_neuq_mt_chubut.frequencies"/>
    <parameter idref="A_neuq_mt_chubut.alpha"/>
    <parameter idref="A_neuq_mt_chubut.pInv"/>
    <parameter idref="A_neuq_nu_ANT_Chubut.ac"/>
    <parameter idref="A_neuq_nu_ANT_Chubut.ag"/>
    <parameter idref="A_neuq_nu_ANT_Chubut.at"/>
    <parameter idref="A_neuq_nu_ANT_Chubut.cg"/>
    <parameter idref="A_neuq_nu_ANT_Chubut.gt"/>
    <parameter idref="A_neuq_nu_ANT_Chubut.frequencies"/>
    <parameter idref="A_neuq_nu_ANT_Chubut.pInv"/>
    <parameter idref="A_neuq_nu_EF1Exon_Chubut.ac"/>
    <parameter idref="A_neuq_nu_EF1Exon_Chubut.ag"/>
    <parameter idref="A_neuq_nu_EF1Exon_Chubut.at"/>
    <parameter idref="A_neuq_nu_EF1Exon_Chubut.cg"/>
    <parameter idref="A_neuq_nu_EF1Exon_Chubut.gt"/>
    <parameter idref="A_neuq_nu_EF1Intron_Chubut.ac"/>
    <parameter idref="A_neuq_nu_EF1Intron_Chubut.ag"/>
    <parameter idref="A_neuq_nu_EF1Intron_Chubut.at"/>
    <parameter idref="A_neuq_nu_EF1Intron_Chubut.cg"/>
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<parameter idref="A_neuq_nu_EF1Intron_Chubut.gt"/>
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<parameter idref="A_neuq_mt_chubut.uclD.mean"/>
<parameter idref="A_neuq_mt_chubut.uclD.stdev"/>
<parameter idref="A_neuq_nu_ANT_Chubut.uclD.mean"/>
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<rateStatistic idref="A_neuq_mt_chubut.coefficientOfVariation"/>
<rateCovarianceStatistic idref="A_neuq_mt_chubut.covariance"/>
<rateStatistic idref="A_neuq_nu_ANT_Chubut.meanRate"/>
<rateStatistic idref="A_neuq_nu_ANT_Chubut.coefficientOfVariation"/>
<rateCovarianceStatistic idref="A_neuq_nu_ANT_Chubut.covariance"/>
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<rateCovarianceStatistic idref="A_neuq_nu_EF1Exon_Chubut.covariance"/>
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  <discretizedBranchRates idref="A_neuq_mt_chubut.branchRates"/>
  <posterior idref="posterior"/>
</logTree>
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  <posterior idref="posterior"/>
</logTree>
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  <discretizedBranchRates idref="A_neuq_nu_EF1Exon_Chubut.branchRates"/>
  <posterior idref="posterior"/>
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  <discretizedBranchRates idref="A_neuq_nu_EF1Intron_Chubut.branchRates"/>
  <posterior idref="posterior"/>
</logTree>
</mcmc>
<report>
  <property name="timer">
    <mcmc idref="mcmc"/>
  </property>
</report>
<VDAnalysis id="demographic.analysis" burnIn="0.25" useMidpoints="true">
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  A_neuq_ALL_chubut.log
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  <treeOfLoci>
    A_neuq_ALL_chubut.A_neuq_nu_ANT_Chubut.trees
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</populationFirstColumn>
<indicatorsFirstColumn>
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</indicatorsFirstColumn>
</VDAnalysis>
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  </columns>
</CSVexport>
</beast>
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