Crosswalk Between BP6 Variables and Units-of-Measure

Table 1 – Units-of-Measure Groups

static const char \*BasalAreaUnits[] =

{ "ft2/ac", "m2/ha", NULL };

static const char \*DistLongUnits[] =

{ "mi", "km", "ch", "ft", "m", NULL };

static const char \*DistMedUnits[] =

{ "ft", "m", "in", "cm", "ch", NULL };

static const char \*DistShortUnits[] =

{ "in", "cm", "ft", "m", NULL };

static const char \*DistMapUnits[] =

{ "in", "cm", NULL };

static const char \*ElevationUnits[] =

{ "ft", "m", "ch", NULL };

static const char \*FireAreaUnits[] =

{ "ac", "ha", "ft2", "m2", "mi2", "km2", NULL };

static const char \*FireDistUnits[] =

{ "ch", "m", "ft", "mi", "km", NULL };

static const char \*FireHpuaUnits[] =

{ "Btu/ft2", "kW-s/m2", "kJ/m2",NULL };

static const char \*FireFlameUnits[] =

{ "ft", "m", "in", "cm", "ch", NULL };

static const char \*FireLineIntUnits[] =

{ "Btu/ft/s", "kJ/m/s", "Btu/ft/min", "kJ/m/min", "kW/m", NULL };

static const char \*FirePowerUnits[] =

{ "ft-lb/s/ft2", "m-kg/s/m2", NULL };

static const char \*FireRxIntUnits[] =

{ "Btu/ft2/min", "kJ/m2/min", "Btu/ft2/s", "kJ/m2/s", "kW/m2", NULL };

static const char \*FireSpreadUnits[] =

{ "ch/h", "m/min", "ft/min", "mi/h", "km/h", "m/h", "m/s",

"furlongs/fortnight", NULL };

static const char \*FuelBulkUnits[] =

{ "lb/ft3", "kg/m3", NULL };

static const char \*FuelDepthUnits[] =

{ "ft", "m", "in", "cm", NULL };

static const char \*FuelHeatUnits[] =

{ "Btu/lb", "kJ/kg", NULL };

static const char \*FuelHeatSinkUnits[] =

{ "Btu/ft3", "kJ/m3", NULL };

static const char \*FuelLoadUnits[] =

{ "ton/ac", "tonne/ha", "lb/ft2", "kg/m2", NULL };

static const char \*FuelSavrUnits[] =

{ "ft2/ft3", "m2/m3", "in2/in3", "cm2/cm3", NULL } ;

static const char \*PercentUnits[] =

{ "%", "fraction", NULL };

static const char \*RatioUnits[] =

{ "ratio", NULL };

static const char \*SafetyAreaUnits[] =

{ "ft2", "m2", "ac", "ha", "mi2", "km2", NULL };

static const char \*SlopeUnits[] =

{ "%", "degrees", NULL };

static const char \*TemperatureUnits[] =

{ "oF", "oC", "K", NULL };

static const char \*TimeLongUnits[] =

{ "years", NULL };

static const char \*TimeShortUnits[] =

{ "h", "min", "s", NULL };

static const char \*TimeMedUnits[] =

{ "h", "min", NULL };

static const char \*WafUnits[] =

{ "fraction", NULL };

static const char \*WindSpeedUnits[] =

{ "mi/h", "m/min", "ft/min", "ch/h", "km/h", "m/s", "furlongs/fortnight", NULL };

Table 2 – BehavePlus6 Variable Groups

//--------------------------------------------------------------------------

// Fuel & Vegetation Units (page 1)

//--------------------------------------------------------------------------

// These use BasalAreaUnits

static const char \*BasalAreaVars[] =

{

"vSurfaceFuelPalmettoOverstoryBasalArea",

NULL

};

// These use FuelBulkUnits

static const char \*FuelBulkVars[] =

{

"vSurfaceFuelBedBulkDensity",

"vSurfaceFuelDens0",

"vSurfaceFuelDens1",

"vSurfaceFuelDens2",

"vSurfaceFuelDens3",

"vSurfaceFuelDens4",

"vSurfaceFuelDens5",

"vSurfaceFuelDens6",

"vSurfaceFuelDens7",

NULL

};

// These use PercentUnits

static const char \*FuelCoverVars[] =

{

"vTreeCanopyCover",

"vSurfaceFuelBedCoverage1",

"vSurfaceFuelPalmettoCover",

NULL

};

// These use PercentUnits

static const char \*FuelCrownVars[] =

{

"vTreeCrownRatio",

NULL

};

// These use FuelLoadUnits

static const char \*FuelLoadVars[] =

{

"vSurfaceFuelAspenLoadDead1",

"vSurfaceFuelAspenLoadDead10",

"vSurfaceFuelAspenLoadLiveHerb",

"vSurfaceFuelAspenLoadLiveWoody",

"vSurfaceFuelChaparralLoadDead1",

"vSurfaceFuelChaparralLoadDead2",

"vSurfaceFuelChaparralLoadDead3",

"vSurfaceFuelChaparralLoadDead4",

"vSurfaceFuelChaparralLoadLive1",

"vSurfaceFuelChaparralLoadLive2",

"vSurfaceFuelChaparralLoadLive3",

"vSurfaceFuelChaparralLoadLive4",

"vSurfaceFuelChaparralLoadLiveLeaf",

"vSurfaceFuelChaparralLoadTotal",

"vSurfaceFuelChaparralLoadTotalDead",

"vSurfaceFuelChaparralLoadTotalLive",

"vSurfaceFuelLoadDead",

"vSurfaceFuelLoadDead1",

"vSurfaceFuelLoadDead10",

"vSurfaceFuelLoadDead100",

"vSurfaceFuelLoadDeadHerb",

"vSurfaceFuelLoadLive",

"vSurfaceFuelLoadLiveHerb",

"vSurfaceFuelLoadLiveWood",

"vSurfaceFuelLoadUndeadHerb",

"vSurfaceFuelLoad0",

"vSurfaceFuelLoad1",

"vSurfaceFuelLoad2",

"vSurfaceFuelLoad3",

"vSurfaceFuelLoad4",

"vSurfaceFuelLoad5",

"vSurfaceFuelLoad6",

"vSurfaceFuelLoad7",

"vSurfaceFuelPalmettoLoadDead1",

"vSurfaceFuelPalmettoLoadDead10",

"vSurfaceFuelPalmettoLoadDeadFoliage",

"vSurfaceFuelPalmettoLoadLitter",

"vSurfaceFuelPalmettoLoadLive1",

"vSurfaceFuelPalmettoLoadLive10",

"vSurfaceFuelPalmettoLoadLiveFoliage",

"vCrownFireFuelLoad",

NULL

};

// These use FuelSavrUnits

static const char \*FuelSavrVars[] =

{

"vSurfaceFuelAspenSavrDead1",

"vSurfaceFuelAspenSavrDead10",

"vSurfaceFuelAspenSavrLiveHerb",

"vSurfaceFuelAspenSavrLiveWoody",

"vSurfaceFuelBedSigma",

"vSurfaceFuelSavrDead1",

"vSurfaceFuelSavrLiveHerb",

"vSurfaceFuelSavrLiveWood",

"vSurfaceFuelSavr0",

"vSurfaceFuelSavr1",

"vSurfaceFuelSavr2",

"vSurfaceFuelSavr3",

"vSurfaceFuelSavr4",

"vSurfaceFuelSavr5",

"vSurfaceFuelSavr6",

"vSurfaceFuelSavr7",

NULL

};

// These use FuelDepthUnits

static const char \*FuelUnderstoryDepthVars[] =

{

"vSurfaceFuelBedDepth",

"vSurfaceFuelChaparralDepth",

"vSurfaceFuelPalmettoHeight",

NULL

};

// These use DistShortUnits

static const char \*FuelGroundDepthVars[] =

{

"vSurfaceFuelDuffDepth",

"vIgnitionLightningDuffDepth",

NULL

};

// These use PercentUnits

static const char \*FuelMoisVars[] =

{

"vSurfaceFuelMoisDead1",

"vSurfaceFuelMoisDead10",

"vSurfaceFuelMoisDead100",

"vSurfaceFuelMoisDead1000",

"vSurfaceFuelMoisLiveHerb",

"vSurfaceFuelMoisLiveWood",

"vSurfaceFuelMoisLifeDead",

"vSurfaceFuelMoisLifeLive",

"vSurfaceFuelBedMextDead",

"vSurfaceFuelBedMextLive",

"vSurfaceFuelBedMoisDead",

"vSurfaceFuelBedMoisLive",

"vSurfaceFuelMois0",

"vSurfaceFuelMois1",

"vSurfaceFuelMois2",

"vSurfaceFuelMois3",

"vSurfaceFuelMois4",

"vSurfaceFuelMois5",

"vSurfaceFuelMois6",

"vSurfaceFuelMois7",

"vTreeFoliarMois",

"vIgnitionFirebrandFuelMois",

"vIgnitionLightningFuelMois",

NULL

};

// These use FuelHeatUnits

static const char \*FuelHeatVars[] =

{

"vSurfaceFuelHeatDead",

"vSurfaceFuelHeatLive",

"vSurfaceFuelHeat0",

"vSurfaceFuelHeat1",

"vSurfaceFuelHeat2",

"vSurfaceFuelHeat3",

"vSurfaceFuelHeat4",

"vSurfaceFuelHeat5",

"vSurfaceFuelHeat6",

"vSurfaceFuelHeat7",

NULL

};

// These use FuelHeatSinkUnits

static const char \*FuelHeatSinkVars[] =

{

"vSurfaceFuelBedHeatSink",

NULL

};

// These use PercentUnits

static const char \*FuelFractionVars[] =

{

"vSurfaceFuelAspenCuring",

"vSurfaceFuelChaparralDeadFuelFraction",

"vSurfaceFuelLoadTransferFraction",

"vSurfaceFuelBedDeadFraction",

"vTreeCanopyCrownFraction",

"vSurfaceFuelBedLiveFraction",

"vSurfaceFuelBedDeadFraction",

NULL

};

// These use RatioUnits

static const char \*FuelPackingRatioVars[] =

{

"vSurfaceFuelBedBetaRatio",

"vSurfaceFuelBedPackingRatio",

NULL

};

// These use FuelBulkUnits

static const char \*TreeBulkVars[] =

{

"vTreeCanopyBulkDens",

NULL

};

// These use DistShortUnits

static const char \*TreeDbhVars[] =

{

"vTreeDbh",

"vTreeBarkThickness",

NULL

};

// These use DistMedUnits

static const char \*TreeHtVars[] =

{

"vTreeCoverHt",

"vTreeCoverHtDownwind",

"vTreeHt",

"vTreeCrownBaseHt",

"vTreeCrownLengScorchedAtVector",

NULL

};

//--------------------------------------------------------------------------

// Weather Units (page 2)

//--------------------------------------------------------------------------

//static const char \*HumidityVars[] =

//{ `

// "vWthrRelativeHumidity",

// NULL

//};

// These use TemperatureUnits

static const char \*TemperatureVars[] =

{

"vWthrAirTemp",

"vWthrWetBulbTemp",

"vWthrDewPointTemp",

"vWthrHeatIndex",

"vWthrSummerSimmerIndex",

"vWthrWindChillTemp",

"vSurfaceFuelTemp",

NULL

};

// These use WindSpeedUnits

static const char \*WindSpeedVars[] =

{

"vWindSpeedAtMidflame",

"vWindSpeedAt20Ft",

"vWindSpeedAt10M",

"vSurfaceFireEffWindAtHead",

"vSurfaceFireEffWindAtVector",

"vSurfaceFireWindSpeedLimit",

"vCrownFireActiveCritOpenWindSpeed",

NULL

};

// These use PercentUnits

static const char \*WthrCoverVars[] =

{

"vSiteSunShading",

NULL

};

// These use WafUnits

static const char \*FuelWafVars[] =

{

"vWindAdjFactor",

NULL

};

//--------------------------------------------------------------------------

// Terrain & Spotting Units (page 3)

//--------------------------------------------------------------------------

// These use SlopeUnits

static const char \*SlopeSteepnessVars[] =

{

"vSiteSlopeFraction",

NULL

};

// These use ElevationUnits

static const char \*ElevationVars[] =

{

"vSiteSlopeRise",

"vSiteSlopeReach",

"vSiteElevation",

"vSiteRidgeToValleyElev",

NULL

};

// These use DistLongUnits

static const char \*SiteDistanceVars[] =

{

"vSiteRidgeToValleyDist",

NULL

};

// These use DistLongUnits

static const char \*SpotDistanceVars[] =

{

"vSpotDistActiveCrown",

"vSpotDistBurningPile",

"vSpotDistSurfaceFire",

"vSpotDistTorchingTrees",

"vSpotFlatDistActiveCrown",

"vSpotFlatDistBurningPile",

"vSpotFlatDistSurfaceFire",

"vSpotFlatDistTorchingTrees",

"vSpotFirebrandDriftSurfaceFire",

NULL

};

// These use DistMedUnits

static const char \*SpotHeightVars[] =

{

"vSpotCoverHtBurningPile",

"vSpotCoverHtSurfaceFire",

"vSpotCoverHtTorchingTrees",

"vSpotFirebrandHtActiveCrown",

"vSpotFirebrandHtBurningPile",

"vSpotFirebrandHtSurfaceFire",

"vSpotFirebrandHtTorchingTrees",

NULL

};

// These use RatioUnits

static const char \*SpotRatioVars[] =

{

"vSpotFlameDurTorchingTrees",

"vSpotFlameRatioTorchingTrees",

NULL

};

//--------------------------------------------------------------------------

// Fire & Effects Units (page 4)

//--------------------------------------------------------------------------

// These use FireSpreadUnits

static const char \*FireSurfaceSpreadVars[] =

{

"vSurfaceFireSpreadAtHead",

"vSurfaceFireSpreadAtBack",

"vSurfaceFireSpreadAtBeta",

"vSurfaceFireSpreadAtFlank",

"vSurfaceFireSpreadAtPsi",

"vSurfaceFireSpreadAtVector",

"vSurfaceFireNoWindRate",

"vContainReportSpread",

NULL

};

// These use FireSpreadUnits

static const char \*FireCrownSpreadVars[] =

{

"vCrownFireActiveCritSurfSpreadRate",

"vCrownFireActiveSpreadRate",

"vCrownFireCritCrownSpreadRate",

"vCrownFireCritSurfSpreadRate",

"vCrownFirePassiveSpreadRate",

//"vCrownFireSpreadRate",

NULL

};

// These use FireHpuaUnits

static const char \*FireHpuaVars[] =

{

"vCrownFireActiveHeatPerUnitArea",

"vCrownFireActiveHeatPerUnitArea",

"vCrownFireHeatPerUnitAreaCanopy",

"vCrownFirePassiveHeatPerUnitArea",

"vSurfaceFireHeatPerUnitArea",

NULL

};

// These use FireLineIntUnits

static const char \*FireLineIntVars[] =

{

"vCrownFireActiveFireLineInt",

"vCrownFireCritSurfFireInt",

//"vCrownFireLineInt",

"vCrownFirePassiveFireLineInt",

"vSurfaceFireLineIntAtBeta",

"vSurfaceFireLineIntAtHead",

"vSurfaceFireLineIntAtPsi",

"vSurfaceFireLineIntAtVector",

NULL

};

// These use FireFlameUnits

static const char \*FireFlameLengthVars[] =

{

"vCrownFireActiveFlameLeng",

"vCrownFireCritSurfFlameLeng",

//"vCrownFireFlameLeng",

"vCrownFirePassiveFlameLeng",

"vSpotFlameHtActiveCrown",

"vSpotFlameHtTorchingTrees",

"vSurfaceFireFlameHtAtVector",

"vSurfaceFireFlameHtPile",

"vSurfaceFireFlameLengAtBeta",

"vSurfaceFireFlameLengAtHead",

"vSurfaceFireFlameLengAtPsi",

"vSurfaceFireFlameLengAtVector",

"vSurfaceFireScorchHtAtVector",

NULL

};

// These use FirePowerUnits

static const char \*FirePowerVars[] =

{

"vCrownFirePowerOfFire",

"vCrownFirePowerOfWind",

NULL

};

//static const char \*FireScorchHtVars[] =

//{

// "vSurfaceFireScorchHtAtVector",

// NULL

//};

// These use FireRxIntUnits

static const char \*FireRxIntVars[] =

{

"vSurfaceFireHeatSource",

"vSurfaceFireReactionInt",

"vSurfaceFireReactionIntDead",

"vSurfaceFireReactionIntLive",

NULL

};

// These use FireDistUnits

static const char \*FireDistVars[] =

{

"vCrownFireActiveFireWidth",

"vCrownFireActiveSpreadDist",

"vCrownFirePassiveFireWidth",

"vCrownFirePassiveSpreadDist",

//"vCrownFireSpreadDist",

"vSurfaceFireDistAtHead",

"vSurfaceFireDistAtBack",

"vSurfaceFireDistAtBeta",

"vSurfaceFireDistAtFlank",

"vSurfaceFireDistAtPsi",

"vSurfaceFireDistAtVector",

"vSurfaceFireEllipseF",

"vSurfaceFireEllipseG",

"vSurfaceFireEllipseH",

"vSurfaceFireWidthDist",

"vSurfaceFireLengDist",

NULL

};

// These use FireAreaUnits

static const char \*FireAreaVars[] =

{

"vContainAttackSize",

"vContainReportSize",

"vContainSize",

"vCrownFireActiveFireArea",

//"vCrownFireArea",

"vCrownFirePassiveFireArea",

"vSurfaceFireArea",

NULL

};

// These use FireDistUnits

static const char \*FirePerimeterVars[] =

{

"vContainAttackPerimeter",

"vCrownFireActiveFirePerimeter",

"vCrownFirePassiveFirePerimeter",

//"vCrownFirePerimeter",

"vSurfaceFirePerimeter",

NULL

};

// These use RatioUnits

static const char \*FireFactorVars[] =

{

"vSurfaceFireSlopeFactor",

"vSurfaceFireWindFactor",

"vContainCost",

"vContainResourceBaseCost",

"vContainResourceHourCost",

NULL

};

// These use RatioUnits

static const char \*FireRatioVars[] =

{

"vContainReportRatio",

"vCrownFireActiveRatio",

"vCrownFireLengthToWidth",

"vCrownFirePowerRatio",

"vCrownFireTransRatio",

"vSurfaceFireEccentricity",

"vSurfaceFireLengthToWidth",

"vSurfaceFirePropagatingFlux",

NULL

};

// These use PercentUnits

static const char \*TreeScorchRatioVars[] =

{

"vCrownFireCanopyFractionBurned",

"vTreeCrownVolScorchedAtVector",

"vTreeCrownLengFractionScorchedAtVector",

"vTreeMortalityRateAtVector",

"vTreeMortalityRateAspenAtVector",

NULL

};

// These use PercentUnits

static const char \*IgnitionProbVars[] =

{

"vIgnitionFirebrandProb",

"vIgnitionLightningProb",

NULL

};

//--------------------------------------------------------------------------

// Time & Map Units (page 5)

//--------------------------------------------------------------------------

// These use TimeMedUnits

static const char \*FireTimeVars[] =

{

"vSurfaceFireElapsedTime",

"vContainResourceArrival",

"vContainResourceDuration",

"vContainTime",

NULL

};

// These use TimeShortUnits

static const char \*FlameResidenceTimeVars[] =

{

"vSurfaceFireResidenceTime",

NULL

};

// These use TimeLongUnits

static const char \*PalmettoAgeVars[] =

{

"vSurfaceFuelChaparralAge",

"vSurfaceFuelPalmettoAge",

NULL

};

// These use DistMedUnits

static const char \*MapElevationVars[] =

{

"vMapContourInterval",

NULL

};

// These use DistMapUnits

static const char \*MapDistanceVars[] =

{

"vCrownFireActiveSpreadMapDist",

"vCrownFirePassiveSpreadMapDist",

"vMapDist",

"vSpotMapDistActiveCrown",

"vSpotMapDistBurningPile",

"vSpotMapDistSurfaceFire",

"vSpotMapDistTorchingTrees",

"vSurfaceFireMapDistAtHead",

"vSurfaceFireMapDistAtBack",

"vSurfaceFireMapDistAtBeta",

"vSurfaceFireMapDistAtFlank",

"vSurfaceFireMapDistAtPsi",

"vSurfaceFireMapDistAtVector",

"vSurfaceFireWidthMapDist",

"vSurfaceFireLengMapDist",

"vSiteRidgeToValleyMapDist",

NULL

};

//--------------------------------------------------------------------------

// Contain & Safety Units (page 6)

//--------------------------------------------------------------------------

// These use FireDistUnits

static const char \*ContainDistVars[] =

{

"vContainAttackBack",

"vContainAttackDist",

"vContainAttackHead",

"vContainAttackPerimeter",

"vContainLimitDist",

"vContainLine",

"vContainReportBack",

"vContainReportHead",

"vContainXMax",

"vContainXMin",

"vContainYMax",

NULL

};

// These use FireSpreadUnits

static const char \*ContainRateVars[] =

{

"vContainResourceProd",

NULL

};

// These use DistMedUnits

static const char \*SafetyDistVars[] =

{

"vSafetyZoneLength",

"vSafetyZoneRadius",

"vSafetyZoneSepDist",

NULL

};

// These use FireAreaUnits

static const char \*SafetyAreaVars[] =

{

"vSafetyZoneSize",

"vSafetyZoneSizeSquare",

NULL

};

// These use SafetyAreaUnits

static const char \*SafetyPEVars[] =

{

"vSafetyZoneEquipmentArea",

"vSafetyZonePersonnelArea",

NULL

Table 3 -