

Agency/Organization: U.S. Geological Survey

Project Name: Assessing Gila Monster Genetic Diversity

Project Number: 2023-USGS-2315H

Reporting Period: April 6 – July 6, 2026

Project Contact Name and Information:

Amy Vandergast, Email: avandergast@usgs.gov Phone: 619-225-6445

**QUESTION 1: What did you accomplish during this reporting period?
How did these accomplishments help you reach the goal of your project?**

Project Accomplishments included:

- Analysis of resequenced samples, mapping to genome, and final selection of SNP sites for analysis (see attached Table 1).
- Quarterly progress meeting (M06)
- Quarterly progress report (D09)

In total we sequenced 287 samples from throughout the species range and 7 outgroups, 262 of these were retained for analysis after quality assessments and filtering. The final dataset will consist of 33,795 SNPs and 2.3 percent missing data.

QUESTION 2: What, if any, problems were encountered? Briefly describe those problems and the manner in which they were dealt.

None.

QUESTION 3: What, if any, proposed activities were not completed? Briefly describe those activities, the reasons they were not completed and your plans for carrying them out.

All activities that were planned for this quarter have been completed.

QUESTION 4: What is the calculated percent of work completed?

We estimate that approximately 90% of the total project is now complete.

QUESTION 5: Do you foresee any upcoming problems with future project activities? If so, how do you propose to overcome those problems?

We do not anticipate any problems.

QUESTION 6: Is there anything else you want to tell the DCP about this project?

Not at this time.

QUESTION 7: What was produced during the reporting period?

Data Analysis and Bioinformatics: Alignment to existing Gila Monster genome, assessment of genetic structure through clustering and phylogenetic analysis with outgroups, estimation of N_e in focal populations.

Deliverable 09: Quarterly progress report

Table 1. Individual per sample statistics after alignment to a reference genome (*Heloderma suspectum*; [Heloderma suspectum.final.reference.fasta](#)) using the Stacks bioinformatics pipeline for restriction-enzyme based data.

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
btcy_01	Nevada: Clark Co, Bootleg Canyon	16,014,969	13,508,808	0.844	34,990	471,444	20.8	0.1%	Pass
mccu_01	Nevada: Clark Co, Mid McCulloughs	6,361,420	5,470,237	0.86	4,897	347,904	10.0	0.3%	Pass
mccu_02	Nevada: Clark Co, Mid McCulloughs	7,650,095	6,486,133	0.848	12,452	381,004	11.5	0.2%	Pass
mccu_04	Nevada: Clark Co, Mid McCulloughs	7,822,279	6,616,264	0.846	20,352	374,623	11.6	0.2%	Pass
mccu_05	Nevada: Clark Co, Mid McCulloughs	2,491,445	1,944,227	0.78	1,669	265,368	4.4	16.5%	Pass
mccu_06	Nevada: Clark Co, Mid McCulloughs	4,286,742	3,607,004	0.841	10,959	305,271	7.3	1.0%	Pass
mccu_09	Nevada: Clark Co, Mid McCulloughs	12,354,610	10,744,195	0.87	45,229	421,845	17.6	0.1%	Pass
mccu_10	Nevada: Clark Co, Mid McCulloughs	7,500,672	6,454,252	0.86	6,296	375,225	11.3	0.2%	Pass
mccu_11	Nevada: Clark Co, Mid McCulloughs	56,238,302	48,429,474	0.861	529,481	615,223	67.5	0.1%	Pass
mccu_12	Nevada: Clark Co, Mid McCulloughs	3,535,783	3,019,710	0.854	29,025	272,268	6.6	3.2%	Pass
mccu_13	Nevada: Clark Co, Mid McCulloughs	29,984,729	26,138,314	0.872	40,283	533,716	38.5	0.1%	Pass
mccu_14	Nevada: Clark Co, Mid McCulloughs	71,149,405	61,605,804	0.866	288,152	647,132	84.8	0.0%	Pass
mccu_15	Nevada: Clark Co, Mid McCulloughs	6,786,928	5,916,117	0.872	30,822	346,620	10.9	0.2%	Pass
mccu_16	Nevada: Clark Co, Mid McCulloughs	3,289,768	2,844,675	0.865	12,693	272,196	6.2	5.2%	Pass
apex_02	Nevada: Clark Co, Apex	8,001,569	6,644,510	0.83	98,518	392,306	11.1	0.2%	Pass
apex_03	Nevada: Clark Co, Apex	9,060,643	7,598,413	0.839	33,139	410,322	12.4	0.1%	Pass
apex_04r	Nevada: Clark Co, Apex	1,537,456	1,278,265	0.831	12,240	184,415	3.8	36.5%	Fail

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
ahcy_01	Nevada: Clark Co, Arrowhead Canyon	7,526,006	6,320,392	0.84	23,602	390,053	10.6	0.3%	Pass
cali_01r	Nevada: Clark Co, Calico Basin	3,092,181	2,640,030	0.854	16,723	227,542	6.6	11.7%	Pass
cali_03	Nevada: Clark Co, Calico Basin	11,647,894	9,947,347	0.854	28,751	433,750	15.8	0.1%	Pass
cali_04	Nevada: Clark Co, Calico Basin	11,595,058	9,892,514	0.853	14,339	430,402	15.7	0.1%	Pass
cali_05	Nevada: Clark Co, Calico Basin	6,375,799	5,374,638	0.843	10,493	359,333	9.8	0.7%	Pass
cali_06	Nevada: Clark Co, Calico Basin	5,197,603	4,390,865	0.845	11,448	328,200	8.4	0.7%	Pass
cali_07	Nevada: Clark Co, Calico Basin	4,697,036	3,965,105	0.844	4,255	321,574	7.6	1.1%	Pass
cali_08	Nevada: Clark Co, Calico Basin	14,922,086	12,717,503	0.852	18,093	480,030	19.4	0.1%	Pass
cali_09	Nevada: Clark Co, Calico Basin	30,725,582	25,763,627	0.839	46,664	562,185	36.2	0.0%	Pass
cali_10	Nevada: Clark Co, Calico Basin	13,642,124	11,758,116	0.862	20,037	450,975	18.6	0.0%	Pass
cali_11	Nevada: Clark Co, Calico Basin	12,452,879	10,466,670	0.841	19,110	448,834	16.2	0.1%	Pass
cali_12	Nevada: Clark Co, Calico Basin	8,402,398	7,103,247	0.845	8,008	383,445	12.2	0.1%	Pass
cali_13r	Nevada: Clark Co, Calico Basin	2,310,625	1,909,118	0.826	34,092	223,642	4.8	17.3%	Pass
cali_14	Nevada: Clark Co, Calico Basin	4,035,653	3,436,360	0.852	8,499	296,193	7.1	1.2%	Pass
cali_15	Nevada: Clark Co, Calico Basin	6,218,908	5,243,031	0.843	18,914	358,750	9.4	0.4%	Pass
cali_16.2	Nevada: Clark Co, Calico Basin	5,809,724	4,948,909	0.852	7,764	349,684	9.1	0.7%	Pass
cali_17	Nevada: Clark Co, Calico Basin	4,350,216	3,711,072	0.853	3,805	305,599	7.5	1.9%	Pass
cali_18	Nevada: Clark Co, Calico Basin	21,664,604	18,973,476	0.876	17,043	488,306	28.6	0.0%	Pass
cali_19	Nevada: Clark Co, Calico Basin	12,358,880	10,371,070	0.839	20,544	447,670	16.0	0.1%	Pass

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
cali_20	Nevada: Clark Co, Calico Basin	8,105,629	6,854,256	0.846	7,847	384,167	11.7	0.1%	Pass
cali_21	Nevada: Clark Co, Calico Basin	10,847,645	9,027,890	0.832	17,718	433,637	14.2	0.1%	Pass
cali_23	Nevada: Clark Co, Calico Basin	5,544,523	4,576,282	0.825	31,695	346,276	8.4	0.3%	Pass
cali_24r	Nevada: Clark Co, Calico Basin	4,924,151	4,133,159	0.839	28,677	293,404	8.4	3.6%	Pass
cali_25	Nevada: Clark Co, Calico Basin	3,276,342	2,561,490	0.782	1,856	285,448	5.4	6.7%	Pass
cali_26r	Nevada: Clark Co, Calico Basin	5,594,161	4,615,859	0.825	53,165	313,782	8.9	1.1%	Pass
cali_27	Nevada: Clark Co, Calico Basin	3,023,117	2,480,637	0.821	2,265	271,060	5.5	5.7%	Pass
cali_29r	Nevada: Clark Co, Calico Basin	12,606,628	10,415,605	0.826	29,571	391,925	17.3	0.1%	Pass
cali_30	Nevada: Clark Co, Calico Basin	3,597,086	3,010,244	0.837	2,421	291,398	6.4	3.5%	Pass
cali_31r	Nevada: Clark Co, Calico Basin	32,833,969	27,077,931	0.825	68,328	487,724	40.7	0.1%	Pass
cali_32	Nevada: Clark Co, Calico Basin	6,217,623	4,913,008	0.79	3,477	393,486	8.3	0.9%	Pass
cali_33r	Nevada: Clark Co, Calico Basin	310,820	257,010	0.827	4,961	71,658	1.8	NA	Fail
cali_34	Nevada: Clark Co, Calico Basin	2,454,050	1,890,145	0.77	1,211	257,280	4.3	16.0%	Pass
cali_35	Nevada: Clark Co, Calico Basin	6,587,097	5,685,077	0.863	10,442	345,583	10.5	0.3%	Pass
cali_40	Nevada: Clark Co, Calico Basin	5,856,782	5,035,111	0.86	5,636	327,189	9.7	0.5%	Pass
cali_42	Nevada: Clark Co, Calico Basin	4,219,372	3,530,452	0.837	7,891	316,657	6.9	1.9%	Pass
cali_43	Nevada: Clark Co, Calico Basin	1,782,103	1,486,338	0.834	5,773	216,233	3.9	27.5%	Pass
cali_44	Nevada: Clark Co, Calico Basin	2,206,375	1,860,598	0.843	2,559	230,417	4.7	19.7%	Pass
cali_45.2	Nevada: Clark Co, Calico Basin	14,603,881	12,494,013	0.856	33,217	434,742	20.2	0.0%	Pass

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
xmas_01	Nevada: Clark Co, Christmas Tree Pass	1,511,747	1,255,111	0.83	18,755	190,435	3.7	38.5%	Fail
xmas_02	Nevada: Clark Co, Christmas Tree Pass	15,515,806	13,216,202	0.852	35,831	444,800	21.2	0.0%	Pass
xmas_03r	Nevada: Clark Co, Christmas Tree Pass	42,584	11,229	0.264	24,930	4,400	1.3	NA	Fail
xmas_04r	Nevada: Clark Co, Christmas Tree Pass	24,969	8,897	0.356	5,475	3,570	1.2	NA	Fail
elmt_01	Nevada: Clark Co, Eldorado	38,628,743	32,504,434	0.841	118,811	573,740	45.6	0.1%	Pass
hnds_01	Nevada: Clark Co, Henderson	2,012,911	1,712,991	0.851	4,730	212,998	4.6	18.6%	Pass
hnds_02	Nevada: Clark Co, Henderson	2,905,820	2,330,882	0.802	3,570	265,380	5.3	10.0%	Pass
lvgs_01	Nevada: Clark Co, Las Vegas	7,611,272	6,454,082	0.848	7,435	380,186	11.2	0.2%	Pass
lnmt_01	Nevada: Clark Co, Lone Mountain	4,198,347	3,347,276	0.797	2,223	343,917	6.6	2.4%	Pass
lnmt_02	Nevada: Clark Co, Lone Mountain	7,842,533	6,865,175	0.875	14,079	366,020	12.2	0.1%	Pass
mccu_03	Nevada: Clark Co, Mid McCulloughs	21,534,361	18,023,444	0.837	75,770	515,112	26.1	0.1%	Pass
mccu_08r	Nevada: Clark Co, Mid McCulloughs	11,358	5,062	0.446	2,283	2,070	1.2	NA	Fail
mccu_18	Nevada: Clark Co, Mid McCulloughs	160,884	104,438	0.649	459	33,915	1.7	NA	Fail
mccu_19	Nevada: Clark Co, Mid McCulloughs	6,560,822	5,551,084	0.846	14,261	355,628	10.0	0.2%	Pass
mccu_22	Nevada: Clark Co, Mid McCulloughs	26,050,055	21,914,087	0.841	40,525	532,915	31.2	0.0%	Pass
moap_01	Nevada: Clark Co, Moapa	20,167,372	16,892,149	0.838	35,349	508,807	24.7	0.1%	Pass
elmt_02	Nevada: Clark Co, Nelson	13,474,838	11,139,407	0.827	40,737	467,916	17.0	0.1%	Pass
elmt_03	Nevada: Clark Co, Nelson	4,342,064	3,597,382	0.828	4,759	310,423	7.3	1.7%	Pass
nsrd_01r	Nevada: Clark Co, Northshore Road	1,082,066	894,089	0.826	13,711	158,150	3.0	NA	Fail

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
blud_01	Nevada: Clark Co, Southern RRCNCA	24,225,112	20,646,418	0.852	63,237	514,443	30.5	0.1%	Pass
gold_01	Nevada: Clark Co, Thomas Gap, Gold Butte	24,138,170	20,941,712	0.868	21,290	527,612	30.8	0.1%	Pass
vofi_01	Nevada: Clark Co, Valley of Fire	6,074,659	4,323,461	0.712	3,628	438,332	7.4	1.8%	Pass
vofi_02	Nevada: Clark Co, Valley of Fire	4,733,004	3,915,066	0.827	6,819	314,499	7.8	1.1%	Pass
vofi_03r	Nevada: Clark Co, Valley of Fire	309,565	231,227	0.747	1,427	68,605	1.7	NA	Fail
vofi_04	Nevada: Clark Co, Valley of Fire	2,110,338	1,784,906	0.846	5,002	221,200	4.7	17.4%	Pass
vofi_06	Nevada: Clark Co, Valley of Fire	2,856,462	2,449,995	0.858	6,505	258,397	5.6	6.9%	Pass
vofi_07	Nevada: Clark Co, Valley of Fire	8,844,159	7,360,451	0.832	29,302	407,560	12.0	0.1%	Pass
apex_01	Nevada: ClarkCo, Apex	26,550,608	22,721,416	0.856	23,252	523,541	32.9	0.0%	Pass
momt_01	Nevada: Lincoln Co, Mormon Mountains	3,447,731	2,967,687	0.861	5,855	269,676	6.6	3.2%	Pass
momt_02	Nevada: Lincoln Co, Mormon Mountains	4,620,001	3,981,718	0.862	19,026	310,691	7.9	1.5%	Pass
racy_01	Nevada: Lincoln Co, Rainbow Canyon	9,591,920	8,049,824	0.839	28,655	413,489	13.1	0.1%	Pass
shmt_01	Arizona: Cochise Co, N of Douglas	5,383,250	4,620,086	0.858	10,919	339,093	8.5	0.9%	Pass
shmt_02	Arizona: Cochise Co, N of Douglas	7,219,464	6,135,054	0.85	9,031	377,176	10.6	0.5%	Pass
shmt_03	Arizona: Cochise Co, N of Douglas	66,943,052	57,769,524	0.863	86,015	635,839	79.8	0.2%	Pass
shmt_04	Arizona: Cochise Co, N of Douglas	3,321,626	2,798,062	0.842	10,070	273,046	6.1	4.8%	Pass
pamt_01	Arizona: Cochise Co, Parilla Mountains	14,415,242	11,888,705	0.825	21,971	477,456	18.2	0.3%	Pass
pamt_02	Arizona: Cochise Co, Parilla Mountains	5,794,243	4,830,614	0.834	17,944	355,600	8.7	1.8%	Pass
pamt_03	Arizona: Cochise Co, Parilla Mountains	1,505,891	1,248,658	0.829	5,664	197,786	3.5	39.8%	Fail

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
pamt_04	Arizona: Cochise Co, Parilla Mountains	4,616,921	4,012,108	0.869	9,771	309,573	7.9	1.1%	Pass
rimt_03	Arizona: Cochise Co, Rincon Mtns - Paige Creek	12,238,030	10,245,694	0.837	25,818	441,451	16.1	0.2%	Pass
rimt_09	Arizona: Cochise Co, Rincon Mtns - Paige Creek	14,694,893	12,400,066	0.844	31,231	459,813	19.1	0.1%	Pass
glob_01r	Arizona: Gila Co, Globe on Hwy 60	1,274,909	588,403	0.462	13,958	155,502	2.1	NA	Fail
dunc_01	Arizona: Greenlee Co, 3.1 miles W of Duncan	12,967,323	10,835,629	0.836	54,977	379,036	18.5	0.2%	Pass
glmt_01	Arizona: Maricopa Co, Goldfield Mtns	1,384,029	1,171,365	0.846	35,313	178,940	3.6	41.0%	Fail
glmt_02	Arizona: Maricopa Co, Goldfield Mtns	2,934,715	2,524,300	0.86	12,190	262,137	5.7	7.0%	Pass
glmt_03	Arizona: Maricopa Co, Goldfield Mtns	1,752,937	1,527,502	0.871	3,445	205,861	4.2	26.7%	Pass
glmt_04	Arizona: Maricopa Co, Goldfield Mtns	4,538,690	3,930,107	0.866	8,950	307,248	7.9	1.2%	Pass
harq_01	Arizona: Maricopa Co, Harquahala Mtns	3,160,124	2,746,010	0.869	13,104	260,461	6.2	4.9%	Pass
harq_02	Arizona: Maricopa Co, Harquahala Mtns	7,733,621	6,739,360	0.871	14,749	375,789	11.7	0.3%	Pass
harq_03	Arizona: Maricopa Co, Harquahala Mtns	1,174,283	1,016,516	0.866	1,970	171,058	3.3	49.7%	Fail
harq_04	Arizona: Maricopa Co, Harquahala Mtns	6,319,133	5,447,960	0.862	26,392	354,758	9.8	0.4%	Pass
harq_05	Arizona: Maricopa Co, Harquahala Mtns	1,897,118	1,647,860	0.869	7,246	208,872	4.5	22.4%	Pass
harq_06	Arizona: Maricopa Co, Harquahala Mtns	1,860,618	1,619,051	0.87	4,883	207,209	4.4	23.9%	Pass
harq_07	Arizona: Maricopa Co, Harquahala Mtns	3,103,019	2,719,040	0.876	6,677	258,386	6.2	5.2%	Pass
sdtk_01	Arizona: Maricopa Co, Sand Tank Mtns	22,549,344	19,011,429	0.843	33,786	522,388	27.5	0.1%	Pass
sdtk_02	Arizona: Maricopa Co, Sand Tank Mtns	29,068,851	24,484,929	0.842	73,594	625,211	35.0	0.1%	Pass
sdtk_03	Arizona: Maricopa Co, Sand Tank Mtns	10,505,877	8,907,387	0.848	30,662	407,719	14.8	0.2%	Pass

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
sdtk_04	Arizona: Maricopa Co, Sand Tank Mtns	37,749,491	32,205,338	0.853	158,688	570,298	45.4	0.2%	Pass
aptr_01	Arizona: Maricopa Co, Tortilla Flats, Apache Trail	3,170,613	2,630,815	0.83	21,495	272,380	5.8	4.6%	Pass
dbrd_01	Arizona: Mohave Co, Diamond bar road	7,927,085	6,622,887	0.835	6,912	382,694	11.5	0.2%	Pass
king_01	Arizona: Mohave Co, Kingman	2,533,937	2,191,909	0.865	2,619	242,882	5.2	8.5%	Pass
mule_01	Arizona: Mohave Co, Nothing	2,004,462	1,678,059	0.837	4,600	221,793	4.4	22.4%	Pass
cafh_01	Arizona: Pima Co, Catalina Foothills	5,512,616	4,777,085	0.867	94,287	322,765	9.2	0.6%	Pass
cafh_02	Arizona: Pima Co, Catalina Foothills	4,801,417	4,164,285	0.867	4,982	316,733	8.1	1.4%	Pass
cafh_03	Arizona: Pima Co, Catalina Foothills	5,520,221	4,806,949	0.871	18,956	327,930	9.2	0.7%	Pass
cafh_04	Arizona: Pima Co, Catalina Foothills	20,716,813	17,906,826	0.864	29,953	504,282	26.3	0.1%	Pass
cafh_05	Arizona: Pima Co, Catalina Foothills	9,683,474	8,258,210	0.853	12,603	431,426	13.2	0.2%	Pass
cafh_06	Arizona: Pima Co, Catalina Foothills	4,691,757	4,071,935	0.868	11,591	310,398	8.1	1.1%	Pass
cafh_07	Arizona: Pima Co, Catalina Foothills	5,074,058	4,355,551	0.858	39,524	329,744	8.3	1.0%	Pass
cafh_09	Arizona: Pima Co, Catalina Foothills	2,226,352	1,857,938	0.835	19,408	236,329	4.5	16.3%	Pass
cafh_10	Arizona: Pima Co, Catalina Foothills	1,470,372	1,265,412	0.861	1,983	198,370	3.6	40.3%	Fail
cafh_11	Arizona: Pima Co, Catalina Foothills	2,179,395	1,838,257	0.843	4,755	229,465	4.6	18.6%	Pass
cafh_12	Arizona: Pima Co, Catalina Foothills	5,855,332	5,004,987	0.855	8,627	342,186	9.4	0.5%	Pass
cafh_13	Arizona: Pima Co, Catalina Foothills	2,335,330	2,009,582	0.861	2,901	244,053	4.8	13.4%	Pass
cafh_14	Arizona: Pima Co, Catalina Foothills	5,267,513	4,550,196	0.864	3,419	321,316	8.8	1.1%	Pass
cafh_15	Arizona: Pima Co, Catalina Foothills	9,044,903	7,887,841	0.872	12,003	400,229	13.2	0.2%	Pass

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
cafh_16	Arizona: Pima Co, Catalina Foothills	5,374,255	4,722,898	0.879	7,293	328,182	9.0	0.6%	Pass
cafh_17	Arizona: Pima Co, Catalina Foothills	3,842,728	3,345,090	0.87	7,055	285,220	7.1	2.3%	Pass
cafh_18	Arizona: Pima Co, Catalina Foothills	16,758,144	14,343,062	0.856	40,407	497,506	21.4	0.1%	Pass
cafh_19	Arizona: Pima Co, Catalina Foothills	2,996,539	2,423,754	0.809	2,142	274,820	5.4	10.0%	Pass
cafh_20	Arizona: Pima Co, Catalina Foothills	11,052,760	9,578,229	0.867	9,404	414,175	15.7	0.2%	Pass
cafh_21	Arizona: Pima Co, Catalina Foothills	6,741,893	5,851,185	0.868	18,781	365,698	10.3	0.4%	Pass
avra_04	Arizona: Pima Co, Manville Rd, S of Marana	4,109,260	3,536,349	0.861	3,408	304,450	7.1	1.8%	Pass
orvl_01	Arizona: Pima Co, Oro Valley	4,295,561	3,722,114	0.867	7,020	298,233	7.6	1.7%	Pass
orvl_02	Arizona: Pima Co, Oro Valley	2,551,090	2,142,247	0.84	8,585	244,668	5.1	11.6%	Pass
orvl_03	Arizona: Pima Co, Oro Valley	7,280,746	6,199,820	0.852	17,617	383,910	11.0	0.4%	Pass
orvl_04	Arizona: Pima Co, Oro Valley	5,182,933	4,523,609	0.873	6,391	325,040	8.7	0.8%	Pass
orvl_05	Arizona: Pima Co, Oro Valley	13,946,970	12,076,331	0.866	15,162	463,409	18.5	0.1%	Pass
rimt_01	Arizona: Pima Co, Rincon Mtns	2,094,891	1,798,875	0.859	14,441	225,346	4.6	16.4%	Pass
rimt_02	Arizona: Pima Co, Rincon Mtns	2,400,886	2,068,792	0.862	3,338	235,279	5.1	12.4%	Pass
rimt_04	Arizona: Pima Co, Rincon Mtns	16,105,030	13,528,912	0.84	155,194	460,144	21.0	0.1%	Pass
rimt_05	Arizona: Pima Co, Rincon Mtns	39,677,928	33,034,252	0.833	361,544	583,557	46.0	0.1%	Pass
rimt_06	Arizona: Pima Co, Rincon Mtns	9,951,988	7,787,860	0.783	12,753	439,286	12.3	0.3%	Pass
rimt_07	Arizona: Pima Co, Rincon Mtns	15,757,449	13,061,555	0.829	472,990	471,145	19.7	0.2%	Pass
rimt_08	Arizona: Pima Co, Rincon Mtns	14,733,287	12,414,542	0.843	89,824	487,941	18.9	0.1%	Pass

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
sbmt_01	Arizona: Pima Co, Silver Bell Mountains	13,307,779	11,190,243	0.841	11,863	447,055	17.6	0.1%	Pass
sbmt_02	Arizona: Pima Co, Silver Bell Mountains	7,305,923	6,142,252	0.841	45,129	365,258	10.9	0.4%	Pass
avra_01	Arizona: Pima Co, Silverbell Rd, SE of Marana	8,578,300	7,358,010	0.858	14,746	399,706	12.5	0.2%	Pass
avra_02	Arizona: Pima Co, Silverbell Rd, SE of Marana	1,579,074	1,359,649	0.861	3,247	195,837	3.9	33.5%	Fail
avra_03	Arizona: Pima Co, Silverbell Rd, SE of Marana	3,594,211	3,056,826	0.85	8,485	287,162	6.6	4.4%	Pass
grvy_01	Arizona: Pima Co, south of Green Valley	3,124,895	2,628,635	0.841	6,875	271,586	5.8	4.9%	Pass
stcy_01	Arizona: Pima Co, Stone Canyon Club	7,329,466	5,914,539	0.807	10,281	373,007	10.3	0.4%	Pass
stcy_02r	Arizona: Pima Co, Stone Canyon Club	533,848	283,806	0.532	2,735	87,987	1.7	NA	Fail
stcy_03	Arizona: Pima Co, Stone Canyon Club	34,442,672	28,608,973	0.831	235,099	568,900	40.4	0.1%	Pass
stcy_04	Arizona: Pima Co, Stone Canyon Club	38,215,655	32,127,433	0.841	125,913	686,490	45.3	0.1%	Pass
stcy_05r	Arizona: Pima Co, Stone Canyon Club	4,673,832	3,058,092	0.654	68,201	305,921	6.2	16.9%	Pass
stcy_06	Arizona: Pima Co, Stone Canyon Club	1,906,207	1,211,794	0.636	62,796	225,763	3.1	51.2%	Fail
stcy_07r	Arizona: Pima Co, Stone Canyon Club	18,842,354	15,920,703	0.845	59,142	400,642	26.2	0.1%	Pass
tort_01	Arizona: Pima Co, Tortolita Mtns east side	17,046,747	14,640,946	0.859	44,241	465,236	22.6	0.1%	Pass
tort_02	Arizona: Pima Co, Tortolita Mtns east side	11,723,496	9,844,361	0.84	19,632	457,822	16.1	0.1%	Pass
tort_03	Arizona: Pima Co, Tortolita Mtns east side	10,425,158	8,954,445	0.859	53,255	397,928	15.0	0.2%	Pass
tort_04r	Arizona: Pima Co, Tortolita Mtns east side	2,687,174	2,235,900	0.832	8,882	229,974	5.5	12.3%	Pass
tumt_01	Arizona: Pima Co, Tucson Mtns, Tucson	11,870,676	10,014,894	0.844	25,679	439,150	16.4	0.2%	Pass
tuhl_01	Arizona: Pima Co, Tumamoc Hill, Tucson	15,631,674	13,254,524	0.848	135,409	457,415	20.8	0.1%	Pass

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
avra_05	Arizona: Pima Co, Tuscon	4,466,009	3,798,262	0.85	7,718	305,755	7.7	1.3%	Pass
avra_06	Arizona: Pima Co, Tuscon	8,767,519	7,395,646	0.844	9,133	402,410	12.3	0.2%	Pass
avra_07	Arizona: Pima Co, Tuscon	11,563,949	9,700,827	0.839	35,122	441,042	15.1	0.2%	Pass
avra_08	Arizona: Pima Co, Tuscon	5,226,422	4,465,188	0.854	4,214	327,011	8.5	1.0%	Pass
avra_09	Arizona: Pima Co, Tuscon	11,316,562	9,575,611	0.846	28,934	428,655	15.5	0.2%	Pass
avra_10	Arizona: Pima Co, Tuscon	4,245,649	3,602,438	0.849	6,909	295,644	7.6	1.9%	Pass
avra_11	Arizona: Pima Co, Tuscon	11,098,302	8,957,181	0.807	67,004	459,097	14.2	0.2%	Pass
avra_12	Arizona: Pima Co, Tuscon	8,401,627	7,116,602	0.847	15,079	392,336	12.5	0.3%	Pass
avra_13r	Arizona: Pima Co, Tuscon	28,932	189	0.007	2,592	92	1.0	NA	Fail
vail_01	Arizona: Pima Co, Vail	10,115,982	8,654,321	0.856	10,085	412,951	14.5	0.2%	Pass
vail_02	Arizona: Pima Co, Vail	5,029,144	4,244,607	0.844	6,466	321,572	8.3	2.4%	Pass
blkm_01	Arizona: Pinal Co, Black Mtn	3,064,476	2,669,847	0.871	4,119	261,764	6.0	5.1%	Pass
depk_02	Arizona: Pinal Co, Cattle Tank Rd	5,491,812	4,761,470	0.867	8,159	344,929	8.7	0.7%	Pass
depk_03	Arizona: Pinal Co, Cattle Tank Rd	2,195,716	1,917,267	0.873	3,339	225,192	4.9	15.6%	Pass
decy_01	Arizona: Pinal Co, Derrio Canyon, Tortolita Mtns	4,921,317	4,270,634	0.868	25,228	308,032	8.5	1.1%	Pass
decy_02	Arizona: Pinal Co, Derrio Canyon, Tortolita Mtns	17,539,926	15,196,733	0.866	64,502	485,832	22.7	0.1%	Pass
decy_03	Arizona: Pinal Co, Derrio Canyon, Tortolita Mtns	6,255,257	5,468,848	0.874	8,087	341,414	10.1	0.4%	Pass
depk_01	Arizona: Pinal Co, Desert Peak area	2,127,190	1,805,226	0.849	1,858	229,910	4.5	17.3%	Pass
cfbt_01	Arizona: Pinal Co, E of Chief Buttes	5,069,817	4,398,833	0.868	8,155	319,510	8.5	0.9%	Pass

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
flor_01	Arizona: Pinal Co, Florence	12,705,014	10,896,363	0.858	27,447	446,591	16.9	0.1%	Pass
glcy_01	Arizona: Pinal Co, Guild Canyon, Tortolita Mtns	5,686,372	4,889,459	0.86	9,850	351,196	8.8	0.6%	Pass
glcy_02	Arizona: Pinal Co, Guild Canyon, Tortolita Mtns	14,230,716	12,179,813	0.856	97,277	460,657	18.6	0.1%	Pass
glcy_03	Arizona: Pinal Co, Guild Canyon, Tortolita Mtns	10,329,687	8,902,324	0.862	20,069	420,323	14.3	0.2%	Pass
glcy_04	Arizona: Pinal Co, Guild Canyon, Tortolita Mtns	7,150,160	6,045,564	0.846	51,682	380,601	10.4	0.5%	Pass
glcy_05	Arizona: Pinal Co, Guild Canyon, Tortolita Mtns	3,897,710	3,247,576	0.833	23,857	299,818	6.6	2.8%	Pass
glcy_06	Arizona: Pinal Co, Guild Canyon, Tortolita Mtns	6,508,552	5,613,296	0.862	10,293	349,882	10.2	0.4%	Pass
glcy_07	Arizona: Pinal Co, Guild Canyon, Tortolita Mtns	6,090,674	5,291,640	0.869	14,524	339,020	9.9	0.4%	Pass
glcy_09	Arizona: Pinal Co, Guild Canyon, Tortolita Mtns	6,695,388	5,794,457	0.865	47,228	352,204	10.5	0.4%	Pass
glcy_10	Arizona: Pinal Co, Guild Canyon, Tortolita Mtns	16,675,733	14,340,437	0.86	29,211	476,838	21.6	0.1%	Pass
glcy_11	Arizona: Pinal Co, Guild Canyon, Tortolita Mtns	4,821,557	4,164,323	0.864	30,934	320,265	8.0	0.9%	Pass
glcy_12	Arizona: Pinal Co, Guild Canyon, Tortolita Mtns	5,275,158	4,551,873	0.863	69,079	325,042	8.7	0.6%	Pass
glcy_13	Arizona: Pinal Co, Guild Canyon, Tortolita Mtns	7,084,096	6,030,433	0.851	60,843	371,335	10.5	0.3%	Pass
glcy_14	Arizona: Pinal Co, Guild Canyon, Tortolita Mtns	1,260,941	1,085,912	0.861	7,496	173,726	3.4	47.2%	Fail
sumt_13	Arizona: Pinal Co, Iron Mine Hill / Suizo Mtns	3,353,082	2,894,979	0.863	12,782	271,011	6.4	4.3%	Pass
sumt_14r	Arizona: Pinal Co, Iron Mine Hill / Suizo Mtns	24,516,435	173,580	0.007	10,210,396	2,512	18.8	NA	Fail
sumt_15	Arizona: Pinal Co, Iron Mine Hill / Suizo Mtns	3,728,610	3,126,303	0.838	27,638	293,895	6.5	3.4%	Pass
sumt_16	Arizona: Pinal Co, Iron Mine Hill / Suizo Mtns	2,961,473	2,562,594	0.865	6,202	267,060	5.7	6.4%	Pass
sumt_21	Arizona: Pinal Co, Iron Mine Hill / Suizo Mtns	3,561,659	3,008,709	0.845	8,934	294,010	6.2	4.1%	Pass

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
sumt_23r	Arizona: Pinal Co, Iron Mine Hill / Suizo Mtns	12,259,459	10,268,218	0.838	86,436	366,389	17.8	0.2%	Pass
sumt_24	Arizona: Pinal Co, Iron Mine Hill / Suizo Mtns	577,307	311,168	0.539	448	103,156	1.6	NA	Fail
sumt_25	Arizona: Pinal Co, Iron Mine Hill / Suizo Mtns	1,658,586	1,415,027	0.853	1,673	195,798	4.1	29.5%	Pass
sumt_26	Arizona: Pinal Co, Iron Mine Hill / Suizo Mtns	6,845,027	5,888,415	0.86	7,513	372,367	10.3	0.5%	Pass
sumt_27	Arizona: Pinal Co, Iron Mine Hill / Suizo Mtns	15,474,835	13,050,500	0.843	22,650	493,639	19.4	0.1%	Pass
sumt_28	Arizona: Pinal Co, Iron Mine Hill / Suizo Mtns	1,411,644	1,169,971	0.829	8,822	189,516	3.4	44.6%	Fail
sumt_29	Arizona: Pinal Co, Iron Mine Hill / Suizo Mtns	3,953,841	3,346,172	0.846	33,864	294,852	6.9	2.2%	Pass
sumt_30	Arizona: Pinal Co, Iron Mine Hill / Suizo Mtns	2,391,513	1,971,119	0.824	22,609	252,849	4.6	17.7%	Pass
noth_01	Arizona: Pinal Co, Ninetysix Hills	10,784,417	9,434,355	0.875	14,145	424,001	15.2	0.1%	Pass
nshl_01	Arizona: Pinal Co, Ninetysix Hills	12,969,777	10,849,078	0.836	23,827	460,790	16.7	0.2%	Pass
nshl_02	Arizona: Pinal Co, Ninetysix Hills	3,296,506	2,667,952	0.809	5,393	293,073	5.5	6.2%	Pass
nshl_03	Arizona: Pinal Co, Ninetysix Hills	5,961,851	5,109,331	0.857	13,227	337,550	9.6	0.6%	Pass
nshl_04	Arizona: Pinal Co, Ninetysix Hills	33,702,069	28,294,018	0.84	50,425	570,210	39.6	0.1%	Pass
owbt_01. 1	Arizona: Pinal Co, Owl Head Buttes	3,244,137	2,804,545	0.864	14,704	272,655	6.1	5.3%	Pass
owbt_03	Arizona: Pinal Co, Owl Head Buttes	12,896,265	11,141,806	0.864	16,073	453,153	17.5	0.1%	Pass
tbtp_01	Arizona: Pinal Co, Table Top Mtn	12,309,553	9,728,723	0.79	7,249	446,915	15.4	0.2%	Pass
tbtp_02	Arizona: Pinal Co, Table Top Mtn	12,483,283	10,157,486	0.814	29,892	481,029	16.4	0.2%	Pass
atmt_01	Arizona: Santa Cruz Co, Atascosa Mtns	7,595,553	5,935,430	0.781	4,672	401,209	10.2	0.5%	Pass
ctwd_01	Arizona: Yavapai Co, Cottonwood Creek	1,620,442	1,147,221	0.708	3,155	209,913	3.1	NA	Fail

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
ctwd_02	Arizona: Yavapai Co, Cottonwood Creek	3,467,165	2,562,065	0.739	4,085	298,703	5.3	6.8%	Pass
ctwd_03	Arizona: Yavapai Co, Cottonwood Creek	2,476,927	1,929,239	0.779	2,093	251,870	4.5	16.5%	Pass
ctwd_05	Arizona: Yavapai Co, Cottonwood Creek	1,539,528	1,120,048	0.728	1,326	203,250	3.1	NA	Fail
ctwd_06	Arizona: Yavapai Co, Cottonwood Creek	4,648,861	3,429,828	0.738	3,652	358,629	6.2	3.2%	Pass
ctwd_07	Arizona: Yavapai Co, Cottonwood Creek	38,177,598	31,069,031	0.814	35,323	647,529	43.0	0.1%	Pass
tial_01	Arizona: Yuma Co, Tinajas Altas	8,973,753	7,689,641	0.857	15,730	384,554	13.4	0.2%	Pass
tial_02	Arizona: Yuma Co, Tinajas Altas	19,557,747	16,800,791	0.859	16,297	482,314	25.6	0.1%	Pass
whit_01	New Mexico: Grant Co, White Rock Canyon	9,051,429	7,680,329	0.849	25,618	328,178	14.3	0.5%	Pass
whit_02	New Mexico: Grant Co, White Rock Canyon	4,919,371	4,117,467	0.837	43,411	285,827	8.5	1.3%	Pass
whit_03	New Mexico: Grant Co, White Rock Canyon	8,662,630	7,235,680	0.835	35,151	348,843	12.8	0.3%	Pass
blue_01	New Mexico: Hidalgo Co, Blue Mountain	1,528,434	1,311,285	0.858	3,869	188,321	3.9	34.6%	Fail
blue_02	New Mexico: Hidalgo Co, Blue Mountain	9,552,711	8,147,191	0.853	21,916	406,832	13.5	0.2%	Pass
brmt_01	New Mexico: Hidalgo Co, Brushy Mountain	2,931,846	2,487,688	0.849	8,628	254,660	5.7	6.4%	Pass
brmt_02	New Mexico: Hidalgo Co, Brushy Mountain	5,474,389	4,589,749	0.838	11,454	344,856	8.7	0.7%	Pass
brmt_03	New Mexico: Hidalgo Co, Brushy Mountain	7,302,528	6,240,364	0.855	16,632	369,616	11.1	0.4%	Pass
pelo_01	New Mexico: Hidalgo Co, Peloncillo Mtns	3,211,234	2,651,956	0.826	2,563	278,033	5.8	7.6%	Pass
pelo_02	New Mexico: Hidalgo Co, Peloncillo Mtns	2,990,603	2,556,201	0.855	2,609	349,713	5.3	11.4%	Pass
pelo_03	New Mexico: Hidalgo Co, Peloncillo Mtns	10,558,600	9,047,850	0.857	11,860	428,252	14.6	0.2%	Pass
pelo_04	New Mexico: Hidalgo Co, Peloncillo Mtns	5,614,146	4,731,566	0.843	16,806	346,353	8.7	0.8%	Pass

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
pelo_05	New Mexico: Hidalgo Co, Peloncillo Mtns	9,183,502	7,826,681	0.852	11,510	398,783	13.1	0.3%	Pass
pelo_06	New Mexico: Hidalgo Co, Peloncillo Mtns	6,049,749	5,139,115	0.849	14,858	351,682	9.3	0.6%	Pass
pelo_07	New Mexico: Hidalgo Co, Peloncillo Mtns	5,605,485	4,807,807	0.858	9,153	329,355	9.3	0.6%	Pass
pelo_08	New Mexico: Hidalgo Co, Peloncillo Mtns	4,111,058	3,552,005	0.864	3,800	293,906	7.4	2.8%	Pass
pelo_09	New Mexico: Hidalgo Co, Peloncillo Mtns	13,407,253	11,432,584	0.853	31,679	443,560	18.0	0.1%	Pass
pelo_10	New Mexico: Hidalgo Co, Peloncillo Mtns	10,752,957	9,260,195	0.861	15,951	415,145	15.3	0.1%	Pass
pelo_11	New Mexico: Hidalgo Co, Peloncillo Mtns	11,396,756	9,607,244	0.843	17,271	440,622	15.0	0.2%	Pass
pelo_12	New Mexico: Hidalgo Co, Peloncillo Mtns	9,582,151	8,274,683	0.864	16,043	387,448	14.2	0.2%	Pass
pelo_13	New Mexico: Hidalgo Co, Peloncillo Mtns	5,348,894	4,599,037	0.86	8,997	325,807	8.9	0.8%	Pass
pelo_14	New Mexico: Hidalgo Co, Peloncillo Mtns	9,371,263	7,999,121	0.854	17,221	399,154	13.3	0.2%	Pass
pelo_15	New Mexico: Hidalgo Co, Peloncillo Mtns	22,025,800	18,409,025	0.836	92,634	440,019	28.8	0.1%	Pass
pelo_16	New Mexico: Hidalgo Co, Peloncillo Mtns	16,653,844	14,055,438	0.844	24,105	394,900	23.4	0.1%	Pass
demi_01	New Mexico: Luna Co, Deming	15,707,937	12,902,618	0.821	61,383	423,894	20.6	0.2%	Pass
leed_08	Utah: Washington Co, Babylon- Sand Cove	5,537,775	4,748,351	0.857	4,794	328,884	9.0	0.5%	Pass
bkhw_01	Utah: Washington Co, Buckskin Hollow	10,729,615	8,949,558	0.834	17,867	436,843	14.0	0.1%	Pass
elar_04	Utah: Washington Co, Dino Cliffs	6,069,207	4,900,225	0.807	2,814	363,470	8.8	0.4%	Pass
elar_05	Utah: Washington Co, East Mill Creek	3,812,057	3,129,675	0.821	3,874	299,594	6.4	3.1%	Pass
elar_01	Utah: Washington Co, Elephant Arch, RCDR	2,734,972	2,170,528	0.794	1,356	261,733	4.9	11.9%	Pass
elar_02	Utah: Washington Co, Elephant Arch, RCDR	2,243,162	1,762,073	0.786	1,347	243,526	4.2	21.6%	Pass

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
elar_03	Utah: Washington Co, Elephant Arch, RCDR	3,650,827	2,877,228	0.788	1,930	300,652	5.9	3.7%	Pass
leed_03	Utah: Washington Co, Gould Wash	21,091,054	17,678,024	0.838	27,408	551,841	25.8	0.1%	Pass
leed_01	Utah: Washington Co, Leeds	5,863,742	4,833,299	0.824	3,398	364,072	8.7	0.5%	Pass
leed_02	Utah: Washington Co, Leeds	14,157,106	11,886,315	0.84	18,634	490,082	18.3	0.1%	Pass
leed_05	Utah: Washington Co, Leeds	4,168,066	3,528,427	0.847	12,180	297,742	7.2	1.5%	Pass
leed_06	Utah: Washington Co, Leeds	5,207,086	4,480,075	0.86	8,724	313,953	8.8	0.4%	Pass
leed_07	Utah: Washington Co, Leeds	6,295,797	5,412,936	0.86	13,933	333,416	10.3	0.3%	Pass
shiv_01	Utah: Washington Co, Shivwits/Highway 91	16,590,157	13,846,381	0.835	26,333	489,923	20.6	0.1%	Pass
sncy_01	Utah: Washington Co, Snow Canyon SP	20,779,812	17,359,042	0.835	30,716	532,523	25.1	0.1%	Pass
sacI_01	Utah: Washington Co, St. George	4,287,117	3,493,693	0.815	1,982	311,260	7.0	1.6%	Pass
sacI_02	Utah: Washington Co, St. George	11,318,410	9,388,486	0.829	31,009	423,798	15.4	0.1%	Pass
sacI_03	Utah: Washington Co, St. George	5,389,957	4,611,830	0.856	11,257	324,773	9.0	0.4%	Pass
leed_04	Utah: Washington Co, Toquerville	23,171,799	19,859,104	0.857	21,819	502,998	29.7	0.1%	Pass
wrvy_01	Utah: Washington Co, Warner Valley	7,950,548	6,362,422	0.8	4,794	428,449	10.3	0.4%	Pass
wrvy_02	Utah: Washington Co, Warner Valley	4,260,033	3,694,909	0.867	6,908	294,998	7.6	1.1%	Pass
wrvy_03	Utah: Washington Co, Warner Valley	11,214,600	9,418,681	0.84	36,110	427,248	15.0	0.1%	Pass
wrvy_04	Utah: Washington Co, Warner Valley	4,246,438	3,590,134	0.845	3,817	308,463	7.2	1.7%	Pass
wrvy_05	Utah: Washington Co, Warner Valley	12,634,737	10,251,802	0.811	18,234	534,910	15.7	0.1%	Pass
wrvy_06	Utah: Washington Co, Warner Valley	8,308,143	7,196,258	0.866	7,585	386,156	12.3	0.1%	Pass

Sample	Location	Alignments obtained	Alignments kept	Fraction kept	Unmapped alignments	Number of loci	Mean coverage	Percent Missing	Passed Filtering
wrvy_07	Utah: Washington Co, Warner Valley	6,296,635	5,288,628	0.84	19,031	348,991	9.7	0.2%	Pass
wrvy_08	Utah: Washington Co, Warner Valley	7,726,904	6,688,452	0.866	11,936	371,646	11.8	0.1%	Pass
wafd_01	Utah: Washington Co, Washington Fields	31,934,342	27,382,196	0.857	37,241	581,349	39.0	0.0%	Pass
wafd_02	Utah: Washington Co, Washington Fields	13,135,768	11,211,389	0.854	36,309	459,120	17.6	0.1%	Pass