Supplementary Material

Prioritizing complementary conservation sites for systematic landrace diversity monitoring through an integrated multi-level hotspot analysis: the case of potatoes in Peru

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**Supplementary Table 1.** Landrace inventory data sources

|  |  |  |
| --- | --- | --- |
| **Citation** | **#Records** | **Source type** |
| Pérez Baca, L. (1996). Crianza de la Papa en Paucartambo –Qosqo.  Cusco, Peru: Centro de Servicios Agropecuarios (CESA) | 292 | Book |
| BioAndes (2012). Variedades de papas nativas y conocimientos campensinos. Lima, Peru: BioAndes, Centro IDEAS, Agencia Suiza para el Desarrollo y la Cooperación (COSUDE), Asociación ETC Andes | 24 | Catalogue |
| Cahuana Quispe, R., Arcos Pineda, J. (2002) 'Variedades nativas y mejoradas de papa en Puno' Catalogue. Instituto Nacional de Investigacion Agraria (INIA), Puno, Peru | 172 | Catalogue |
| Centro Internacional de la Papa (CIP) (2023) 'Catálogo de variedades de papa nativa de Tayabamba, La Libertad - Peru.' Centro Internacional de la Papa (CIP), Asociación Pataz, Instituto Nacional de innovación Agraria (INIA), Lima, Peru. | 150 | Catalogue |
| Centro Internacional de la Papa (CIP); Grupo Yanapai; Gobierno Regional de Huancavelica; Asociación de Guardianes de Papa Nativa del Centro del Perú (AGUAPAN) (2021) 'Catálogo Línea de Base de la Diversidad de Papa Nativa del Microcentro Yauli - Paucará, Huancavelica, Perú. Lima (Perú).' Centro Internacional de la Papa (CIP). ISBN 978-92-9060-600-0. 300 p. | 198 | Catalogue |
| Cosio Cuentas, P., Álvarez Mozo, S., Ponce Rosaso, J., Camargo Chávez, J. (2006) 'Variabilidad de papas nativas en seis comunidades de Calca y Urubamba - Cusco' Catalogo. Asociación ARARIWA, Cusco, Peru | 490 | Catalogue |
| de Haan, S., Otiniano Villanueva, R. (2015) 'Catálogo de Variedades de Papa Nativa de Chugay, La Libertad - Perú' Catalogue. International Potato Center (CIP), Asociación Pataz, and Instituto Nacional de Innovación Agraria (INIA), Lima, Peru | 128 | Catalogue |
| de Haan, S., Taipe Palomino, A., Ramos Cóndor, A. (2006) 'Catálogo de variedades de papa nativa de Huancavelica-Perú' Catalogue. International Potato Center (CIP), la Federación Departamental de Comunidades Campesinas (FEDECH), Lima, Peru | 361 | Catalogue |
| Egúsquiza Bayona, R., (2015) 'Catálogo de papas nativas cultivadas in Huánuco' Catalogue. Universidad Nacional Agraria La Molina, Food and Agriculture Organization of the United Nations (FAO), Instituto Nacional de Innovación Agraria (INIA), Agencia Española de Cooperación Internacional para el Desarrollo (AECID), Lima, Peru | 778 | Catalogue |
| Egúsquiza Bayona, R., Amézquita Amézquita, W., Alcalde Ludeña, S. (2018) 'Papas nativas cultivads en Chicla y San Mateo, Huarochirí - Lima' Catalogue. Universidad Nacional Agraria La Molina, Empresa Minera Los Quenuales, Lima, Peru | 157 | Catalogue |
| Gutiérrez, R., Valencia, C. (2010) 'Las papas nativas de Canchis. Un catálogo de biodiversidad' Catalogue. Soluciones Prácticas, Lima, Peru | 85 | Catalogue |
| Hancco, H., Blas, R., Quispe, M., Ugás, R. (2008) 'Pampacorral. Catálogo de sus papas nativas' Catalogue. Universidad Nacional Agaria La Molina, Asociación Nacional de Productores Ecológicos, Lima, Peru | 109 | Catalogue |
| Ministerio de Agricultura y Riego (MINAGRI), Grupo Yanapai, Instituto Nacional de Innovación Agraria (INIA), Centro Internacional de la Papa (CIP) (2017) 'Catálogo de variedades de papa nativa del sureste del departamento de Junín - Perú' Catalogue. International Potato Center (CIP), Lima, Peru | 146 | Catalogue |
| Muñoz Tapara, C., Estaña Gonzales, W., (2012) 'Diversidad y Variabilidad Genética de Papa Nativa en Puno' Catalogue as part of the 'Proyecto Mejoramiento de Capacidades Técnico Productivas para la  Competitividad de los Cultivos Andinos de Papa Nativa, Haba y Cañihua en la Región Puno' Puno Regional Government and Proyecto Cultivos Andinos, Puno, Peru | 86 | Catalogue |
| Palomino Flores, L. (2018) 'La Papa Nativa en Apurimac. Identificación participativa de variedades en los distritos de Huayana y Pomacocha' Catalogue. PRODERN, Bélgica, CTB Perú, Lima, Peru | 116 | Catalogue |
| Palomino Flores, L., Pacheco del Castillo, M. A., Cabrera Hoyos, H. A., Morote Quispe, M., Cahuana Quispe, R., Arcos Pineda, J., Zúñiga López, L. N., Huanco Sacachipana, V., Riveros Chahuayo, C., Torres Mayta, R. (2009) 'Caracterizacion Morfologica Y Agronomica De 61 Variedades Nativas De Papa' Catalogue. Instituto Nacional de Innovación Agraria, La Molina, Peru | 997 | Catalogue |
| Raime Gutiérez, L., Checya Bonifacio, D. (1999) 'Conservación In Situ de la Agrobiodiversidad Andino-Amazónica' Catalogue as part of the Proyecto Conservación In Situ de Cultivos Nativos y sus Parientes Silvestres PER/98/G33, Programa de Naciones Unidas (PNUD), Fondo Mundial del Medio Ambiente (FMAM), Centro de Servicios Agropecuarios (CESA), Cusco, Peru PER/98/G33 | 920 | Catalogue |
| Roldán Chávez, A., Palomino Flores, L., Salas Lopez, A. R. (2019) 'Catálogo de variedades de papa nativa de las regiones de Apurímac, Cusco y Puno - Perú' Catalogue. Instituto Nacional de Innovación Agraria, La Molina, Peru | 200 | Catalogue |
| Silvera, W., Media, M., Obregón, G., Palao Cano, J. C., Isidro Loaiza, J., López, J., Morote Quispe, M. (2015) 'Descripción Morfológica De Tubérculos De La Colección Del Germoplasma De Papa Nativa De La Provincia De Andahuaylas' Asociación Solaris Perú, Magdalena del Mar, Lima, Peru. Available at: <https://www.scribd.com/document/352124288/282649628-Descripcion-Morfologica-del-Tuberculo-Germoplasma-de-Papa-Nativa-Andahuayla-pdf> | 844 | Catalogue |
| Centrum voor Genetische Bronnen Nederland (2020) 'GCN Complete Passport data' Available at: <https://cgn.websites.wur.nl/Website/downloads/DownloadCnr41.htm> Accessed 20/05/2020 | 8 | Genebank |
| International Potato Center (CIP) (2021) 'Cultivated Potato Germplasm Collection' Available at: <https://cipotato.org/genebankcip/potato-cultivated/> Accessed 08/04/2021 | 11196 | Genebank |
| United States Department of Agriculture (USDA) (2020) 'GRIN Global Solanum tuberosum Germplasm Search' Provided by Marty Reisinger 17/7/2020 | 207 | Genebank |
| Cook, O. F. (1925) 'Peru as a Center of Domestication. Tracing the Origin of Civilization Through the Domesticated Plants (Continued from the February Issue)' Journal of Heredity 16(3) pp 95-110 | 41 | Historical |
| Hawkes, J. G. (1944) 'Potato Collecting Expeditions in Mexico and South America II. Systematic Classification of the Collections' Imperial Bureau of Plant Breeding and Genetics, Cambridge, UK | 351 | Historical |
| Hawkes, J.G. (1997). Ecogeographic dataset for Solanum taxa. Unpublished dataset, University of Birmingham, Birmingham, UK. | 339 | Historical |
| Ochoa, C. M. (1999) 'Las Papas de Sudamerica Peru' International Potato Center (CIP), Lima, Peru | 6548 | Historical |
| Vargas, C. (1949) 'Las Papas Sudperuanas. Parte I.' Universidad Nacional del Cusco, Cusco. | 591 | Historical |
| Vargas, C. (1956) 'Las Papas Sudperuanas. Parte II.' Universidad Nacional del Cusco, Cusco. | 334 | Historical |
| Pacheco, M.A., Gutierrez, L.R., Salcedo, O.F. (2023) 'Paucartambo - Cusco: Centro de Origen, Domesticación y Variabilidad de las Papas Cultivadas del Perú'. Municipalidad Provincial del Cusco, Cusco. | 2231 | Paper |
| Zimmerer, K. S., (1991) 'Labor Shortages and Crop Diversity in the Southern Peruvian Sierra' Geographical Review 81(4) pp. 414-432 <https://doi.org/10.2307/215608> | 77 | Paper |
| Juarez, H, Plasencia, F., Polreich, S., Scurrah, M., Ccanto, R., De Haan, S. (2017a), ‘Dataset for: Participatory mapping for long-term monitoring and red listing of cultivated potato populations in Junin, Peru’, International Potato Center Available at:  <https://doi.org/10.21223/P3/DNQ4ED> | 1627 | Participatory mapping |
| Juarez, H., Plasencia, F., Polreich, S., Arce, A., De Haan, S., (2017b), ‘Dataset for: Participatory mapping for long-term monitoring and red listing of cultivated potato populations in Pasco, Peru’, International Potato Center Available at <https://doi.org/10.21223/P3/VRAXFD> | 3226 | Participatory mapping |
| Juarez, H., Plasencia, F., Polreich, S., Begazo, D., De Haan, S., (2017c), ‘Dataset for: Participatory mapping for long-term monitoring and red listing of cultivated potato populations in Apurimac, Peru’, International Potato Center Available at: <https://doi.org/10.21223/P3/OFZMO9> | 2439 | Participatory mapping |
| Juarez, H., Plasencia, F., Polreich, S., de Haan, S. (2017d) ‘Dataset for: Participatory mapping for long-term monitoring and red listing of cultivated potato populations in Cusco, Peru’ International Potato Center Available at <https://doi.org/10.21223/P3/4LWCG4> | 2379 | Participatory mapping |
| Juarez, H., Plasencia, F., Polreich, S., Scurrah, M,. Ccanto, R., De Haan, S. (2017e), ‘Dataset for: Participatory mapping for long-term monitoring and red listing of cultivated potato populations in Huancavelica, Peru’, International Potato Center Available at <https://doi.org/10.21223/P3/CVRYSO> | 3408 | Participatory mapping |
| Polreich, S., Juarez, H., Plasencia, F., Suarez, V., Lüttringhaus, S., Pradel, W., Scurrah, M., Ccanto, R., De Haan, S., (2018) ‘Dataset for: Analysis of Socioeconomics, geospatial and agroecological indicators for potato diversity management at family level of the in-situ monitoring hotspot of Huancavelica (Peru) in 2013 and 2017’ International Potato Center (CIP), Available at: <https://doi.org/10.21223/P3/A93MJV> | 3098 | Participatory mapping |
| Meza Valasco, C. J. (2011) 'Informe de Actividades N° 04' Internal report from the International Potato Center (CIP), Lima, Peru | 66 | Report |
| Pradel, W., Hareau, G., Quintanilla, L., Suarez, V., (2018) 'Replication data for: Adoption and diffusion of potato varieties in Peru', <https://doi.org/10.21223/P3/MDNLI6>, International Potato Center, V1, Available at: <https://data.cipotato.org/dataset.xhtml?persistentId=doi:10.21223/P3/MDNLI6> | 1148 | Study |
| Chambi Pacoricona, W. M. (2006) 'Semillas, Señas Y Secretos De Crianza De La Diversidad Y Variabilidad De La Papa (Solanum Tuberosum L. Subespecie Andigena Juz. Et Bu K). En Los Ayllus Del Distrito De Conima, Departamento De Puno' Masters thesis, Universidad Nacional Agraria de la Selva Tingo María, Huánuco, Peru Available at: <http://repositorio.unas.edu.pe/handle/UNAS/724> | 366 | Thesis |
| Condori Ramirez, E. (2014), ' Comparativo de rendimiento de diez cultivares nativos de papa (Solanum Sp) con pulpa pigmentada', Agronomic Engineer thesis, Universidad Nacional de Huancavelica (UNH), Huancavelica, Peru. Available at: <http://repositorio.unh.edu.pe/handle/UNH/209> | 10 | Thesis |
| Díaz Tolentino, L. P., Fernández Escalante, T. A, Fernández Escalante, K. V. (2016), 'Cualidades para el procesamiento industrial, potencial agronómico y caracterización ex situ de papas nativas procedentes de Carhuapata, Huamalíes, en condiciones agroecológicas de Kichqui – Huanuco', Agronomic Engineers thesis, Universidad Nacional Hermilio Valdizán, Huanuco, Peru. Available at: <http://repositorio.unheval.edu.pe/handle/UNHEVAL/2037> | 94 | Thesis |
| Dionicio Laberio, G. K. (2018) 'Caracterización morfológica de accesiones de papas nativas de la Region Ancash en el Distrito de Marcara – Carhuaz – Ancash' Agronomic Engineer's thesis, Universidad Nacional "Santiago Antúnez De Mayolo”, Huaraz, Áncash, Peru. Available at: <http://repositorio.unasam.edu.pe/handle/UNASAM/2207> | 81 | Thesis |
| Garay Durán, N. H., Huancía Julca, A. (2015), 'Evaluación morfológica, fenológica, agronómica y etnobotánica de la diversidad de papas nativas cultivadas (Solanum Spp.) En el distrito de Kichki - Huánuco', Agronomic Engineer thesis, Universidad Nacional Hermilio Valdizán, Huánuco, Peru. Avaliable at: <http://repositorio.unheval.edu.pe/handle/UNHEVAL/1616> | 218 | Thesis |
| Mayon Yance, M. (2018), 'Evaluación de la diversidad genética de papa nativa cultivada (Solanum Sp.) En la comunidad campesina de Santa Cruz De Paccho del distrito de Paucara, provincia de Acobamba, departamento Huancavelica' Agronomic Engineer thesis, Universidad Nacional de Huancavelica (UNH), Huancavelica, Peru. Avaliable at: <http://repositorio.unh.edu.pe/handle/UNH/2176> | 79 | Thesis |
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| Silvera Rivera, W. (2018), 'Caracterización morfológica de papas nativas (Solanum Spp.) de la provincia de Andahuaylas, Apurímac', Agronomic Engineer thesis, Universidad Nacional Agraria La Molina, La Molina, Lima, Peru. Available at: <http://repositorio.lamolina.edu.pe/handle/UNALM/3360> | 240 | Thesis |
| Tapia Vasquez, H. J. (2017) 'Fenología y caracterización morfológica de 43 entradas de papa chaucha (Solanum tuberosum L. Grupo Phureja) de la región Cajamarca' Agronomic Engineer thesis, Universidad Nacional de Cajamarca, Cajamarca, Peru. Available at: <http://repositorio.unc.edu.pe/handle/UNC/1673> | 43 | Thesis |
| Valdivia Díaz, M. (2014), 'Percepción local de la diversidad infra específica de papas nativas (Solanum Spp) en tres comunidades andinas de Haquira (Apurímac) y su aporte en la adaptación al cambio climático' Agronomic Engineer thesis, Universidad Nacional Agraria La Molina, La Molina, Lima, Peru. Available at: <http://repositorio.lamolina.edu.pe/handle/UNALM/2097> | 254 | Thesis |
| Rojas Domínguez (2007), 'Análisis de la diversidad genética de papas nativas (Solanum sec. Petota) de la comunidad de Chahuaytire, integrante del Parque de la Papa (Pisaq-Cusco), y de las papas nativas repatriadas por el Centro Internacional de la Papa usando marcadores microsatélites'. Universidad Nacional Mayor de San Marcos, Lima, Peru. Available at: <https://hdl.handle.net/10568/125219> | 194 | Thesis |

**Supplementary Table 2:** The grid cell complementary network for in situ reserves using DIVA-GIS reserve selection tool in grid cells at 25 x 25 km2. The number in the cell indicates the sequence in which order cells were selected. The table describes each of the reserves, the unique potato landrace contained in each selected reserve and the cumulative potato landrace diversity (landraces that are not present in any of the previously selected reserves). Total distinct landrace names in the database are 10,426 (9,956 used for the complementarity analysis)

|  |  |  |  |
| --- | --- | --- | --- |
| **Grid cell**   **network** | **Unique potato landrace nomenclature diversity** | **Cumulative potato landrace nomenclature diversity** | **Cumulative % of total potato landrace nomenclature diversity** |
| 1 | 1,018 | 1,018 | 10.2% |
| 2 | 793 | 1,811 | 18.2% |
| 3 | 310 | 2,121 | 21.3% |
| 4 | 297 | 2,418 | 24.3% |
| 5 | 258 | 2,676 | 26.9% |
| 6 | 235 | 2,911 | 29.2% |
| 7 | 230 | 3,141 | 31.5% |
| 8 | 220 | 3,361 | 33.8% |
| 9 | 197 | 3,558 | 35.7% |
| 10 | 196 | 3,754 | 37.7% |
| 11 | 196 | 3,950 | 39.7% |
| 12 | 165 | 4,115 | 41.3% |
| 13 | 159 | 4,274 | 42.9% |
| 14 | 141 | 4,415 | 44.3% |
| 15 | 139 | 4,554 | 45.7% |
| 16 | 139 | 4,693 | 47.1% |
| 17 | 133 | 4,826 | 48.5% |
| 18 | 124 | 4,950 | 49.7% |
| 19 | 119 | 5,069 | 50.9% |
| 20 | 115 | 5,184 | 52.1% |
| 21 | 109 | 5,293 | 53.2% |
| 22 | 101 | 5,394 | 54.2% |
| 23 | 97 | 5,491 | 55.2% |
| 24 | 96 | 5,587 | 56.1% |
| 25 | 91 | 5,678 | 57.0% |
| 26 | 88 | 5,766 | 57.9% |
| 27 | 84 | 5,850 | 58.8% |
| 28 | 82 | 5,932 | 59.6% |
| 29 | 82 | 6,014 | 60.4% |
| 30 | 82 | 6,096 | 61.2% |
| 31 | 80 | 6,176 | 62.0% |
| 32 | 77 | 6,253 | 62.8% |
| 33 | 76 | 6,329 | 63.6% |
| 34 | 75 | 6,404 | 64.3% |
| 35 | 75 | 6,479 | 65.1% |
| 36 | 69 | 6,548 | 65.8% |
| 37 | 67 | 6,615 | 66.4% |
| 38 | 67 | 6,682 | 67.1% |
| 39 | 67 | 6,749 | 67.8% |
| 40 | 64 | 6,813 | 68.4% |
| 41 | 62 | 6,875 | 69.1% |
| 42 | 62 | 6,937 | 69.7% |
| 43 | 60 | 6,997 | 70.3% |
| 44 | 60 | 7,057 | 70.9% |
| 45 | 58 | 7,115 | 71.5% |
| 46 | 57 | 7,172 | 72.0% |
| 47 | 56 | 7,228 | 72.6% |
| 48 | 53 | 7,281 | 73.1% |
| 49 | 52 | 7,333 | 73.7% |
| 50 | 51 | 7,384 | 74.2% |
| 51 | 50 | 7,434 | 74.7% |
| 52 | 48 | 7,482 | 75.2% |
| 53 | 44 | 7,526 | 75.6% |
| 54 | 44 | 7,570 | 76.0% |
| 55 | 44 | 7,614 | 76.5% |
| 56 | 43 | 7,657 | 76.9% |
| 57 | 42 | 7,699 | 77.3% |
| 58 | 41 | 7,740 | 77.7% |
| 59 | 41 | 7,781 | 78.2% |
| 60 | 41 | 7,822 | 78.6% |
| 61 | 39 | 7,861 | 79.0% |
| 62 | 39 | 7,900 | 79.3% |
| 63 | 38 | 7,938 | 79.7% |
| 64 | 38 | 7,976 | 80.1% |
| 65 | 36 | 8,012 | 80.5% |
| 66 | 35 | 8,047 | 80.8% |
| 67 | 34 | 8,081 | 81.2% |
| 68 | 33 | 8,114 | 81.5% |
| 69 | 32 | 8,146 | 81.8% |
| 70 | 31 | 8,177 | 82.1% |
| 71 | 30 | 8,207 | 82.4% |
| 72 | 30 | 8,237 | 82.7% |
| 73 | 30 | 8,267 | 83.0% |
| 74 | 30 | 8,297 | 83.3% |
| 75 | 30 | 8,327 | 83.6% |
| 76 | 28 | 8,355 | 83.9% |
| 77 | 27 | 8,382 | 84.2% |
| 78 | 26 | 8,408 | 84.5% |
| 79 | 26 | 8,434 | 84.7% |
| 80 | 26 | 8,460 | 85.0% |
| 81 | 25 | 8,485 | 85.2% |
| 82 | 25 | 8,510 | 85.5% |
| 83 | 23 | 8,533 | 85.7% |
| 84 | 23 | 8,556 | 85.9% |
| 85 | 23 | 8,579 | 86.2% |
| 86 | 22 | 8,601 | 86.4% |
| 87 | 22 | 8,623 | 86.6% |
| 88 | 22 | 8,645 | 86.8% |
| 89 | 20 | 8,665 | 87.0% |
| 90 | 20 | 8,685 | 87.2% |
| 91 | 20 | 8,705 | 87.4% |
| 92 | 20 | 8,725 | 87.6% |
| 93 | 19 | 8,744 | 87.8% |
| 94 | 19 | 8,763 | 88.0% |
| 95 | 19 | 8,782 | 88.2% |
| 96 | 19 | 8,801 | 88.4% |
| 97 | 18 | 8,819 | 88.6% |
| 98 | 18 | 8,837 | 88.8% |
| 99 | 18 | 8,855 | 88.9% |
| 100 | 17 | 8,872 | 89.1% |

**Supplementary Table 3.** List of potato biodiversity hotpots by region, province, and district.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Hotspot / Region /**  **Province / District** | **Overlay analysis** | **Complementary analysis** | **Expert survey** | **Number of landraces** | **Area (km2)** |
| **Hotspot 01** |  |  |  |  |  |
| **Cusco** |  |  |  |  |  |
| Anta |  |  |  |  |  |
| Anta | Yes | Yes |  | 26 | 187.8 |
| Cachimayo | Yes | Yes |  | 8 | 43.7 |
| Huarocondo | Yes | Yes |  |  | 220.6 |
| Pucyura | Yes | Yes |  | 26 | 34.0 |
| Zurite | Yes | Yes |  | 364 | 61.0 |
| Calca |  |  |  |  |  |
| Calca | Yes | Yes |  | 63 | 313.0 |
| Coya | Yes | Yes |  | 4 | 70.4 |
| Lamay | Yes |  | Yes | 147 | 95.7 |
| Lares | Yes | Yes |  | 208 | 733.2 |
| Pisac | Yes | Yes | Yes | 215 | 148.0 |
| San Salvador | Yes | Yes |  | 1 | 128.3 |
| Taray | Yes | Yes |  | 52 | 55.0 |
| Cusco |  |  |  |  |  |
| Ccorca | Yes | Yes |  | 1 | 161.8 |
| Cusco | Yes | Yes |  | 140 | 99.9 |
| Poroy | Yes | Yes |  | 19 | 13.4 |
| San Jeronimo | Yes | Yes |  | 83 | 89.4 |
| San Sebastian | Yes | Yes |  | 21 | 76.9 |
| Santiago | Yes | Yes |  | 82 | 58.9 |
| Saylla | Yes | Yes |  | 2 | 24.2 |
| Wanchaq | Yes | Yes |  |  | 5.7 |
| Paruro |  |  |  |  |  |
| Paruro | Yes | Yes |  | 42 | 153.0 |
| Yaurisque | Yes | Yes |  | 2 | 101.0 |
| Paucartambo |  |  |  |  |  |
| Challabamba | Yes | Yes | Yes | 474 | 715.7 |
| Colquepata | Yes | Yes | Yes | 756 | 460.6 |
| Huancarani | Yes | Yes | Yes | 183 | 145.9 |
| Kosñipata | Yes | Yes |  | 37 | 3,275.9 |
| Paucartambo | Yes | Yes |  | 1268 | 1,094.2 |
| Quispicanchi |  |  |  |  |  |
| Ccatca | Yes | Yes | Yes | 39 | 297.5 |
| Lucre | Yes | Yes |  | 2 | 118.3 |
| Ocongate |  | Yes | Yes | 77 | 950.9 |
| Oropesa | Yes | Yes |  | 10 | 78.5 |
| Urubamba |  |  |  |  |  |
| Chinchero | Yes | Yes |  | 131 | 102.6 |
| **Hotspot 02** |  |  |  |  |  |
| **Huancavelica** |  |  |  |  |  |
| Tayacaja |  |  |  |  |  |
| Pazos | Yes | Yes | Yes | 89 | 154.2 |
| **Junin** |  |  |  |  |  |
| Chupaca |  |  |  |  |  |
| Huamancaca Chico | Yes | Yes |  |  | 13.2 |
| Tres de Diciembre | Yes | Yes |  |  | 16.2 |
| Concepcion |  |  |  |  |  |
| Cochas | Yes | Yes |  | 112 | 108.4 |
| Comas |  | Yes | Yes | 133 | 948.4 |
| Huancayo |  |  |  |  |  |
| Chilca | Yes | Yes |  |  | 26.8 |
| Chupuro | Yes | Yes |  |  | 40.3 |
| Cullhuas | Yes | Yes |  | 8 | 110.8 |
| El tambo | Yes | Yes |  |  | 166.3 |
| Huacrapuquio | Yes | Yes |  |  | 24.3 |
| Hualhuas | Yes | Yes |  |  | 13.6 |
| Huancan | Yes | Yes |  |  | 12.3 |
| Huancayo |  | Yes | Yes | 33 | 226.7 |
| Huayucachi | Yes | Yes |  |  | 14.0 |
| Ingenio | Yes | Yes | Yes | 23 | 54.1 |
| Pariahuanca |  | Yes | Yes | 19 | 580.3 |
| Pilcomayo | Yes | Yes |  |  | 9.0 |
| Pucara | Yes | Yes | Yes | 3 | 111.2 |
| Quichuay | Yes | Yes |  |  | 30.4 |
| Quilcas | Yes | Yes | Yes | 176 | 159.5 |
| Saño | Yes | Yes |  |  | 13.0 |
| San agustin | Yes | Yes |  | 8 | 26.2 |
| Sapallanga | Yes | Yes |  |  | 123.5 |
| Viques | Yes | Yes |  | 2 | 6.1 |
| **Hotspot 03** |  |  |  |  |  |
| **Huancavelica** |  |  |  |  |  |
| Acobamba |  |  |  |  |  |
| Andabamba | Yes | Yes |  | 11 | 81.8 |
| Anta | Yes | Yes |  | 363 | 91.8 |
| Paucara | Yes | Yes | Yes |  | 220.1 |
| Rosario | Yes | Yes |  | 9 | 95.6 |
| Angaraes |  |  |  |  |  |
| Ccochaccasa | Yes |  | Yes | 33 | 107.3 |
| Churcampa |  |  |  |  |  |
| Anco | Yes | Yes |  |  | 269.9 |
| Huancavelica |  |  |  |  |  |
| Acoria | Yes | Yes | Yes | 25 | 543.2 |
| Yauli | Yes | Yes | Yes | 258 | 320.3 |
| **Hotspot 04** |  |  |  |  |  |
| **Ancash** |  |  |  |  |  |
| Huari |  |  |  |  |  |
| San Pedro de Chana | Yes |  | Yes |  | 144.1 |
| **Huanuco** |  |  |  |  |  |
| Ambo |  |  |  |  |  |
| Cayna | Yes | Yes |  | 12 | 157.0 |
| Colpas | Yes | Yes |  |  | 185.8 |
| Huacar | Yes | Yes |  |  | 237.8 |
| Tomay Kichwa |  | Yes | Yes | 119 | 41.6 |
| Dos de mayo |  |  |  |  |  |
| Chuquis | Yes |  | Yes | 1 | 151.7 |
| La union | Yes |  | Yes | 54 | 169.3 |
| Quivilla | Yes | Yes |  | 19 | 37.2 |
| Huamalies |  |  |  |  |  |
| Chavin de Pariarca | Yes | Yes | Yes | 60 | 91.3 |
| Jacas Grande | Yes | Yes |  | 133 | 219.4 |
| Llata |  | Yes | Yes | 26 | 414.0 |
| Miraflores | Yes | Yes |  | 45 | 95.6 |
| Puños | Yes | Yes |  | 154 | 98.4 |
| Punchao | Yes | Yes |  | 9 | 40.5 |
| Singa | Yes | Yes |  |  | 161.4 |
| Tantamayo | Yes | Yes | Yes | 105 | 280.4 |
| Huanuco |  |  |  |  |  |
| Margos | Yes | Yes | Yes | 200 | 286.3 |
| Quisqui | Yes | Yes | Yes | 175 | 160.3 |
| San Pedro de Chaulan | Yes | Yes |  | 161 | 279.7 |
| Yarumayo | Yes | Yes | Yes |  | 63.7 |
| Lauricocha |  |  |  |  |  |
| San Francisco de Asis | Yes | Yes |  |  | 86.3 |
| San Miguel de Cauri |  | Yes | Yes | 10 | 821.0 |
| Yarowilca |  |  |  |  |  |
| Cahuac | Yes | Yes |  |  | 29.6 |
| Chacabamba | Yes | Yes |  |  | 16.4 |
| Chavinillo | Yes | Yes |  | 30 | 206.3 |
| Choras | Yes | Yes |  |  | 61.0 |
| Jacas Chico | Yes | Yes |  | 155 | 70.4 |
| **Hotspot 05** |  |  |  |  |  |
| **Apurimac** |  |  |  |  |  |
| Abancay |  |  |  |  |  |
| Pichirhua | Yes | Yes |  | 11 | 373.9 |
| Andahuaylas |  |  |  |  |  |
| Kishuara | Yes | Yes | Yes | 296 | 309.1 |
| **Hotspot 06** |  |  |  |  |  |
| **Apurimac** |  |  |  |  |  |
| Cotabambas |  |  |  |  |  |
| Challhuahuacho | Yes | Yes |  | 116 | 454.1 |
| Mara | Yes | Yes |  | 50 | 222.3 |
| **Hotspot 07** |  |  |  |  |  |
| **Puno** |  |  |  |  |  |
| Moho |  |  |  |  |  |
| Conima | Yes | Yes |  | 210 | 67.9 |
| Tilali | Yes | Yes |  | 1 | 52.3 |
| **Hotspot 08** |  |  |  |  |  |
| **Puno** |  |  |  |  |  |
| Yunguyo |  |  |  |  |  |
| Cuturapi | Yes | Yes | Yes | 2 | 23.9 |
| Ollaraya | Yes | Yes |  | 4 | 27.4 |
| Tinicachi | Yes | Yes |  | 2 | 4.1 |
| Unicachi | Yes | Yes |  | 2 | 8.1 |
| Yunguyo | Yes | Yes | Yes | 167 | 176.3 |
| **Hotspot 09** |  |  |  |  |  |
| **La libertad** |  |  |  |  |  |
| Sanchez Carrion |  |  |  |  |  |
| Chugay | Yes |  | Yes | 134 | 417.5 |
| Curgos | Yes |  | Yes |  | 98.4 |
| **Hotspot 10** |  |  |  |  |  |
| **La libertad** |  |  |  |  |  |
| Pataz |  |  |  |  |  |
| Tayabamba |  | Yes | Yes | 156 | 338.2 |
| **Hotspot 11** |  |  |  |  |  |
| **Junin** |  |  |  |  |  |
| Junin |  |  |  |  |  |
| Ulcumayo |  | Yes | Yes | 127 | 1,010.3 |
| Tarma |  |  |  |  |  |
| Huasahuasi | Yes |  | Yes | 83 | 636.9 |
| San Pedro de Cajas | Yes |  | Yes | 46 | 512.0 |
| **Pasco** |  |  |  |  |  |
| Pasco |  |  |  |  |  |
| Paucartambo | Yes | Yes | Yes | 240 | 719.1 |
| **Hotspot 12** |  |  |  |  |  |
| **Ayacucho** |  |  |  |  |  |
| La Mar |  |  |  |  |  |
| Tambo | Yes |  | Yes | 153 | 310.0 |
| **Hotspot 13** |  |  |  |  |  |
| **Lima** |  |  |  |  |  |
| Yauyos |  |  |  |  |  |
| Carania | Yes |  | Yes | 33 | 122.0 |
| Laraos | Yes |  | Yes | 32 | 410.3 |