Submission form for topics for Standards and Implementation

*(Updated by the IPPC Secretariat 2018-04-27)*

Name of Country or Organization\_\_\_\_\_\_\_\_\_\_\_China\_\_\_\_\_\_\_\_\_\_\_\_\_

Introduction

In Accordance with CPM-13 decision, a combined call for topics for standards and tools for implementation is opened in 2018. IPPC contracting parties and RPPOs are invited to submit proposals for topics to be included as gaps in the Framework for Standards and Implementation for consideration to be put onto the IPPC work programme. Each submission should clearly define the problem needing resolution in sufficient detail to determine how it fits into the Framework for Standards and Implementation and the cost/benefit of the development of the standard or tool. Submitters are requestedto consult the current IPPC Framework for Standards and Implementation(<https://www.ippc.int/en/publications/82439/>) to identify areas where the proposal can contribute.

Standards

This form covers submissions for new ISPMs, new components to an existing ISPM and revision or amendments to an ISPM, supplement, annex or appendix, including diagnostic protocols. Please note that a separate call for phytosanitary treatments (PTs) is made, more information on this call is available at <https://www.ippc.int/en/core-activities/standards-setting/calls-treatments/>.

Please refer to the IPPC Standard Setting Procedure Manual[[1]](#footnote-1) for an explanation of the hierarchy of terms for standards (technical area, topic and subject). The list of topics for IPPC standards adopted by the CPM is available at <https://www.ippc.int/core-activities/standards-setting/list-topics-ippc-standards>.

Implementation

This form covers submissions for new IPPC implementation resources for implementation of the Convention, ISPMs and CPM recommendations or for revisions to IPPC implementation resources.Please refer to theIPPC Framework for Standards and Implementation on implementation resources that have been adopted/developed, are under development or are planned to be developed.

Submission

This completed form should be submitted by the IPPC official contact point, preferably via e-mail, to the IPPC Secretariat ([ippc@fao.org](mailto:ippc@fao.org)) no later than **31 August 2018**. Please use one form per topic.

An electronic version of this form is available at <https://www.ippc.int/en/core-activities/standards-and-implementation/call-for-topics-standards-and-implementation/>.

Save and submit the completed submission form as:  
2018\_TOPIC\_*[Countryor organization name – Proposed title of topic]*.docx.

(Text in brackets given for explanatory purposes)

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| **Submission form for topics for Standards and Implementation** |
| 1. **Proposed by**:(Name of IPPC Official Contact Point)   China |
| 1. **Contact:**(Contact information of an individual able to clarify issues relating to this submission)   Name: Weichuan Zhou  Position and organization: Chief of Molluscan Quarantine and Identification Key Lab, Professor, Fuzhou Customs  Mailing address: Room 307, Block B, 312 Hu Dong Road, Gulou District, Fuzhou, Fujian, China  Phone: +86 0591 87065584 Fax:  E-mail: wczhou@163.com |
| 1. **Proposed Topic(Choose one box only)**   [\_✔\_] Standard **(go to 4)**[\_\_] Implementation resource**(go to 5)** |

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| 1. **Standards**    1. **Type of topic: (Choose one box only)** | | |
| A. New ISPM:  [\_\_] Concept  [\_\_] Pest specific  [\_\_] Commodity specific  [\_\_] Reference | B. New componentto an existing ISPM:  [\_\_] Supplement  [\_\_] Annex  [\_\_] Appendix  [\_\_] Technical panel (technical area)  [\_✔\_] Diagnostic protocol (subject) | C. Revision/Amendment of:  [\_\_] ISPM  [\_\_] Supplement  [\_\_] Annex  [\_\_] Appendix |
| **Draft specification:**  As agreed by CPM-7 (2012) and CPM-11 (2016), submissions in answer to the call for topics (except for draft diagnostic protocols, which are subject to additional criteria, see below) should be accompanied by a draft specification. Proposals for phytosanitary treatments are submitted using a different submission form in a separate call: <https://www.ippc.int/en/core-activities/standards-setting/calls-treatments/>.  An annotated template for the draft specification for Standards is available on the IPPC (<https://www.ippc.int/en/publications/81324/>) in English, French and Spanish.  **(go to 6)** | | |

**OR**

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| 1. **Implementation**    1. **Type of topic: (Choose one box only)** | |
| 1. New implementation resource:   [\_\_] Guide (e.g. Manual)  [\_\_]Training material(e.g. e-Learning)  [\_\_] Awareness material  [\_\_] Other (Please specify ) | 1. Revision of implementation resource   [\_\_] Guide (e.g. Manual)  [\_\_]Training material (e.g. e-Learning)  [\_\_] Awareness material  [\_\_] Other (Please specify ) |
| * 1. Featured Convention articles, ISPMs and CPM recommendations in the proposed implementation resource   [\_\_] for Convention articles (Please specify )  [\_\_] for ISPM (Please specify )  [\_\_] for CPM Recommendation (Please specify ) | |
| **Draft outline:**  Submissions for topics on implementation should be accompanied by a draft outline of implementation resource defining a scope and purpose, or a draft implementation resource. Commitment for financial/in-kind resources to support the development of the implementation resource may be included in the submission (non-obligatory).  **(go to 6)** | |

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| **6. Proposed title of document**  ISPM27: Diagnostic  protocol for *Cernuella virgata* (Da Costa，1778) |
| **7. Proposed priority**  [✔] 1 (high) [\_\_] 2 [\_\_] 3 [\_\_] 4(low)  Comments:  The Mediterranean white snail, *Cernuella* *virgata* (Da Costa，1778), originated from the Mediterranean Basin and Western Europe, is located in the British Isles mainly, and along the Atlantic coast of Europe, the coastal areas of the Mediterranean Sea except the eastern edge, and Morocco in Northwest Africa. It has been introduced into Southeast Australia and parts of the United States. The snail is widely distributed in southern Australia currently, and is one of the most important invasive alien species, causing serious damage to crops such as victual, beans, fruits, vegetables, and negatively affecting Australia's foreign trade in Agricultural and sideline products. One barley bulk Grain ship from Australia was rejected by Chile's phytosanitary department for carrying this snail, and they suffered huge economic losses. This snail is one of the most important quarantine snails in America. To prevent its invasion and diffusion, the government has implemented three eradication actions in intrusion locations of Washington, Michigan and North Carolina, and invested great manpower and wealth.  This snail has a strong adaptability and can keep dormancy for a long time in severe environment. It has high introduction risk and every country must strengthen quarantine, and is vigilant about its invasion and proliferation. |
| **8.** **Featured outcome of standard/implementation resource**  By studying the comparative morphological and molecular recognition characteristics of *Cernuella virgata* (Da Costa, 1778) and its related species, the systematics status and key technical indicators for taxonomic identification will be clarified, and a highly operable international standard for the diagnosis of this snail will be formulated through the combination of morphology and molecular biology. |
| **9. Contribution to** **filling the gaps of the Framework for Standards and Implementation:** (2 lines max)  Now there is no IPPC diagnostic protocol related to snails. It will fill the gaps of diagnostic protocol for molluscs. |
| **10.Summary of justification for the proposal** (2 lines max)  *Cernuella virgata* (Da Costa, 1778) is an important potential exotic invasive species to agriculture, natural ecosystem, human health and trade. A unified standard is urgently needed to standardize its diagnostic technology. |

**Criteria for justification and prioritization of proposed topics[[2]](#footnote-2):**

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| Submissions should address the applicable criteria for justification of the proposal (as listed below). Where possible, information in support of the justification and that may assist in the prioritization should be indicated.  All core criteria must be addressed; supporting criteria should be addressed if applicable.  Priority will be given to topics with the largest global impact. |
| **Core criteria (must provide information. It is expected that all submissions meet the following core**  **criteria)** |
| Contribution to the purpose of the IPPC as described in article I.1.  To improve the detection rate of*Cernuella virgata* (Da Costa, 1778) and prevent the spread and introduction of the snail.  To protect the environment, forests and biodiversity from the snail and facilitate economic and trade development. |
| Linkage to IPPC Strategic Objectives (SOs) and Organizational results demonstrated.  Conforming to the A-D parts of the IPPC Strategic Objectives (SOs) and A1-D4 parts of the Organizational results demonstrated. |
| Feasibility of implementation at the global level (consider ease of implementation, technical complexity, capacity of NPPO(s) to implement, relevance for more than one region).  In this project, a universal international standard of the diagnosis protocol for *Cernuella virgata* (Da Costa, 1778) will be worked out by combination of morphology and molecular biology. The shortcomings of single morphological identification will have been remedied by molecular recognition method, and the practicability and operability of the standard will have been improved. It is of great significance to protect the safety of agriculture and forestry production and the health of human and livestock. |
| Clear identification of the problems that need to be resolved through the development of the standard or implementation resource.  To provide the ways to detect and identify *Cernuella virgata* (Da Costa, 1778),  solve the current technical problems in accuracy and speed of identification, and prevent the spread and introduction of the snail. |
| Availability of, or possibility to collect, information in support of the proposed standard or implementation resource (e.g. scientific, historical, technical information, experience).  The morphology, reproductive system characteristics and *COI* gene sequence of *Cernuella virgata* (Da Costa, 1778) are the main bases for laboratory identification. The entire mitochondrial genome of *Cernuella virgata* (Da Costa, 1778) has been sequenced by the applicant. On this basis, the detection and identification technology of PCR and real-time fluorescence quantitative PCR have been established. The core achievements have been described in a published SCI article, a patent for invention and a patent for application, and a standard of inspection and quarantine. |

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| **Supporting criteria (information may be provided, as appropriate):** |
| **Supporting criteria (Practical)**   1. Is there a regional standard and/or implementation resource on the same topic already available and used by NPPOs, RPPOs or international organizations. 2. Availability of expertise needed to develop the proposed standard and/or implementation resource.   There is already a regional standard on the same topic available in China. That is “Detection and Identification of *Cernuella virgata* (Da Costa, 1778)” (SN/T 4637-2016; China).  The technical team has a good technical accumulation and research background. The main members have a solid professional foundation, with morphology and molecular biology identification and other research skills of terrestrial molluscs, and actively participated in access assessment work on Australian barley mixing the snails. The professor Weichuan Zhou has published 51 new species of terrestrial snails, presided over 2 projects of the National Natural Science Foundation of China; formulated 15 technical standards; published 5 monographs and more than 120 papers.  The technical team has also established long-term academic exchanges and cooperation with institutions such as the California Museum of Natural History in the United States, the Sengenberg Museum of Natural History in Germany, the British Museum of Natural History and the French Museum of Natural History. Additionally, USDA APHIS National Malacology Laboratory, New Zealand Hamilton Landcare Research and other institutions are also engaged in quarantine and identification of *Cernuella virgata* (Da Costa, 1778). Through extensive international cooperation, the standard will reach the forefront of discipline. |
| **Supporting criteria (Economic)**   1. Estimated value of the plants protected. 2. Estimated value of trade including new trade opportunities affected by the proposed standard and/or implementation resource (e.g. volume of trade, value of trade, the percentage of Gross Domestic Product of this trade) if appropriate.   *Cernuella virgata* (Da Costa, 1778) is a harmful pest intercepted frequently in victualler and conveys quarantine in recent years. It is considered as an important potential exotic invasive species to agriculture, natural ecosystem, human health and trade by most researchers. In addition to harming crops and forestry directly, resulting in loss of yield and quality, it is often attached to a large number of barley, wheat, corn and other cereal crops, causing obstacles to harvesting operations, damaging agricultural machinery. They still survive in crops after harvesting, polluting agricultural products. The snail hides during the day and emerges during the night, causing difficulties in artificial killing, making it difficult to work with contact pesticides. Because of its strong environmental adaptability, the snail is difficult to control and eradicate. Studies have shown that the snail is an intermediate host of paragonimiasis, *Brachylaima cribbi* Butcher & Grove, which is harmful to human and livestock health.  The Mediterranean white snail is mainly transmitted over long distances by means of transportation, wooden packaging materials, flower bonsai and contaminated agricultural and sideline products. Polluted grains and oranges are the most important medium of transmission, with a high rate of transmission. Chile, the United States, Australia, New Zealand, Japan, China and other countries and regions have implemented quarantine to the snail. Therefore, to improve the detection rate, prevent the spread of the snail in the international trade, and protect agricultural and forestry production safety and human and animal health, developing an international diagnostic protocol with strong operability for *Cernuella virgata* (Da Costa, 1778) is of great significance through the application of morphology and molecular biology. |
| **Supporting criteria (Environmental)**   1. Utility to reduce the potential negative environmental consequences of certain phytosanitary measures, for example reduction in global emissions for the protection of the ozone layer. 2. Utility in the management of non-indigenous species which are pests of plants (such as some invasive alien species). 3. Contribution to the protection of the environment, through the protection of wild flora, and their habitats and ecosystems, and of agricultural biodiversity.   Causing degradation of grasslands and rangelands, seriously damaging crops and destroying the ecological environment. |
| **Supporting criteria (Strategic)**   1. Extent of support for the proposed standard and/or implementation resource (e.g. one or more NPPOs or RPPOs have requested it, or one or more RPPOs have adopted a standard on the same topic). 2. Frequency with which the issue to be addressed, as identified in the submission emerges as a source of trade disruption (e.g. disputes or need for repeated bilateral discussions, number of times per year trade is disrupted). 3. Relevance and utility to developing countries. 4. Coverage (application to a wide range of countries/pests/commodities). 5. Complements other standards and/or implementation resources (e.g. potential for the standard to be used as part of a systems approach for one pest, complement treatments for other pests). 6. Conceptual standard and/or implementation resource to address fundamental concepts (e.g. treatment efficacy, inspection methodology). 7. Urgent need for the standard and/or implementation resource.   In the international phytosanitary quarantine, there is a shortage of taxonomic professionals on terrestrial molluscs. The diagnostic protocol for *Cernuella virgata* (Da Costa, 1778) is still blank. An international diagnostic protocol is needed to provide a standard basis for the quarantine and identification work in various countries. |
| **Diagnostic protocols are subject to additional criteria. For proposals for DPs, please elaborate on the following criteria to help the future consideration of the subject proposed:**   * Need for international harmonization of the diagnostic techniques for the pest (e.g. due to difficulties in diagnosis or disputes on methodology) * Relevance of the diagnosis to the protection of plants including measures to limit the impact of the pest. * Importance of the plants protected on the global level (e.g. relevant to many countries or of major importance to a few countries). * Volume/importance of trade of the commodity that is subjected to the diagnostic procedures (e.g. relevant to many countries or of major importance to a few countries). * Other criteria for topics as determined by CPM that are relevant to determining priorities * Balance between pests of importance in different climatic zones (temperate, tropics etc.) and commodity classes. * Number of labs undertaking the diagnosis. * Feasibility of production of a protocol, including availability of knowledge and expertise. |
| **Literature review**[[3]](#footnote-3)(This section will provide a **summary of the topic** based on scientific and technical publications, including a referenced **list of literature reviewed**. This will help provide the scientific basis for the content of the standard/implementation resource to be used by the selected experts during the development of the standard/implementation resource)**.**  *Cernuella virgata* (Da Costa, 1778) is a dangerous pest intercepted by international quarantine of grain vessels and means of transport in recent years. It is considered as an invasive alien species with great potential threat to agriculture, natural ecosystem, human health and trade. It not only seriously damages agricultural and forestry crops and destroys the ecological environment, but also spreads zoonosis parasitic diseases, and does great harm to human and livestock health. At present, Chile, the United States, Australia, New Zealand, Japan, China and other countries and regions have implemented quarantine to the snail. A unified standard to standardize its diagnostic technology is urgent.  Its systematic status and key technical indicators for taxonomic identification will have been clarified based on the combination of comparative morphology and molecular biology and its related species. On this basis, a highly operable international diagnosis standard for this snail will be formulated.  References:   1. Hopkins D. Snails—a quarantine concern for export citrus to the USA. Australia: Entomology Unit, SARDI, 1996. 2. USDA. Port of Tacoma *Cernuella virgata* (*C. virgata*) eradication program in pierce county, Washington. United States Department of Agriculture: Environmental Assessment, 2008. 3. Cowie R H, Dillon R T, Robinson D G, et al. Alien non-marine snails and slugs of priority quarantine importance in the United States: A preliminary risk assessment. American Malacological Bulletin, 2009, 27: 113–132. 4. USDA. New pest response guidelines temperate terrestrial gastropods. United States Department of Agriculture, 2010. 5. Baker, G.H. The life history, population dynamics and polymorphism of *Cernuella virgata* (Mollusca: Helicidae). Australian Journal of Zoology, 1988, 36: 497–512. 6. Baker, G.H. Helicidae and Hygromiidae as Pests in Cereal Crops and Pastures in Southern Australia. In Barker, G. M. (Ed.), Molluscs as Crop Pests, 2002, 193-215. 7. Baker G H. The population dynamics of the Mediterranean snails *Cernuella virgata*, *Cochlicella acuta* (Hygromiidae) and *Theba pisana* (Helicidae) in pasture-cereal rotations in South Australia: a 20 year study. Australian Journal of Experimental Agriculture, 2008, 48: 1514–1522.   **Appendix: foundation owned by declaration unit.**  The key laboratory of Molluscan Quarantine and Identification undertakes projects, such as dangerous snail quarantine technical training, ability verification, identification and review of difficult specimens. The laboratory has about 80,000 specimens (over 5,600 species), including about 958 type specimens (31 species). Importantly, more than 500 Mediterranean white snail specimens from Australia, Germany, the United States, Britain, Italy and other regions have been collected, providing specimen basis for this international standard.  The technical team has a good accumulation and research background. The main members have solid professional foundation, with morphology and molecular biology identification and other research skills of terrestrial molluscs, and actively participated in access assessment work on Australian barley mixing the snails. The professor Weichuan Zhou is a distinguished terrestrial malacologist in China. He has published 51 new species of terrestrial snails, presided over 2 projects of the National Natural Science Foundation of China; formulated 15 technical standards; authorized 6 national invention patents; published 5 monographs and more than 120 papers. So far, the entire mitochondrial genome of *Cernuella virgata* (Da Costa, 1778) has been sequenced by the applicant. On this basis, the detection and identification technology of PCR and real-time fluorescence quantitative PCR have been established. The core achievements have been published by a SCI article, a authorized patent and a applicated patent, and a standard of inspection and quarantine. The main research achievements of the applicant closely related to the project are as follows:  **（1）standard**  《 Detection and Identification of *Cernuella virgata* (Da Costa, 1778) 》(SN/T 4637-2016; China).  **（2）** **Patent for invention**   1. A PCR method for the Detection and Identification of*Cernuella virgate* (Da Costa, 1778)（ZL201410209891.1;China） 2. A fluorescence quantitative PCR method for Detection and Identification of*Cernuella virgate* (Da Costa, 1778)( reviewing, CN107058592A;China)   **（3）** **representative paper (marked "\*" is the communication author)**   1. Haifang Yang, Qiong Xiao, Junxia Cui, Yangwu Lin, Weichuan Zhou \*. Alert to the *Cernuella virgata* invasion. Plant Protection, 2012, 38(4): 185–188. (chinese) 2. Weichuan Zhou, Pei Wang, Weidong Li. Potential distribution areas of *Cernuella virgata* (Stylommatophora: Hygromiidae) in China. Plant Protection, 2014, 40(1): 122–124. (chinese) 3. Jun-Hong Lin, Wei-Chuan Zhou, Hong-Li Ding, Pei Wang\*, Hong-Mu Ai\*. The mitochondrial genome of the land snail *Cernuella virgata* (Da Costa, 1778) the first complete sequence in the family Hygromiidae (Pulmonata, Stylommatophora). ZooKeys, 2016, 589: 55–69. (SCI) 4. Pei Wang, Shan-Ping Yang, Jun-Hong Lin, Ming-Zhe Zhang & Wei-Chuan Zhou\*. The mitochondrial genome of the land snail *Theba pisana* (Müller, 1774) (Stylommatophora: Helicidae): the first complete sequence in the genus Theba. Mitochondrial DNA Part B, 2018, 3(2): 798–800. (SCI) 5. Wei-chuan Zhou, Haifang Yang, Hongli Ding, Shanping Yang, Junhong Lin, Pei Wang\*. Population genetic structure of the land snail *Camaena cicatricosa* (Stylommatophora, Camaenidae) in China inferred from mitochondrial genes and ITS2 sequences. Scientific Reports | 7: 15590 | DOI: 10.1038/ s41598-017-15758-y. (SCI) 6. Hong-Mu Ai, Jun-Hong Lin, Pei Wang, Wei-Chuan Zhou\*, Chung-Chi Hwang\*. Descriptions of two new species of the genus *Camaena* from Guangxi, China (Gastropoda, Stylommatophora, Camaenidae). ZooKeys, 2016, 634: 29–45. (SCI) 7. Hong-Li Ding, Pei Wang, Zhou-Xin Qian, Jun-Hong Lin, Wei-chuan Zhou\*, Chung-chi Hwang\*, Hong-Mu Ai\*. Revision of sinistral land snails of the genus *Camaena* (Stylommatophora, Camaenidae) from China based on morphological and molecular data, with description of a new species from Guangxi, China. ZooKeys, 2016, 584: 25–48. (SCI) 8. Pei Wang, Hai-Fan Yang, Wei-Chuan Zhou\*, Chung-Chi Hwang\*, Wei-Hong Zhang, Zhou-Xing Qian. The mitochondrial genome of the land snail *Camaena cicatricosa* (Müller, 1774) (Stylommatophora, Camaenidae): the first complete sequence in the family Camaenidae. ZooKeys, 2014, 451: 33–48. (SCI) 9. Wei-Chuan Zhou，Qiong Xiao, De-Niu Chen, Chung-Chi Hwang\*. *Plectotropis yonganensis* sp. nov. (Gastropoda: Bradybaenidae) from China, with revision of two Chinese camaenid species (Gastropoda: Camaenidae). Zootaxa, 2011, (2929): 51–56. (SCI) 10. Pei Wang, Qiong Xiao, Wei-Chuan Zhou\*, Chung-Chi Hwang\*. Revision of three camaenid and one bradybaenid species (Gastropoda, Stylommatophora) from China based on morphological and molecular data, with description of a new bradybaenid subspecies from Inner Mongolia, China. ZooKeys, 2014, 372: 1–16. (SCI) |

**Send submissions to:** **Address:** IPPC Secretariat (AGDI)

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1. IPPC Standard Setting Procedure Manual URL: <https://www.ippc.int/en/publications/85024/> [↑](#footnote-ref-1)
2. As agreed by CPM-13 (2018) [↑](#footnote-ref-2)
3. As agreed by CPM-7 (2012) and CPM-11 (2016). [↑](#footnote-ref-3)