|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bioinvasion risk and impact assessment methods | Key principles | | | | | | | |
| Effectiveness | Transparency | Consistency | Compre-  hensiveness | Risk management | Precautionary | Science - based | Continuous improvement |
| AS-ISK | Use of an offline application, definitions of parameters are provided, the calculation scheme is described and clear, the result is obtained automatically. | The evidence supporting assessment is documented and available on request (n.o.). | The consistency was tested, results were published in peer-reviewed literature. (Copp et al., 2016) | Three categories (EN, EC, HH). | Categories of risk, from unacceptable to acceptable, management decisions included. | Level of confidence for each risk assessment step, and final score, clear instructions to define uncertainty is given. | The method based on quantitative and qualitative data, assesses biological traits, environmental tolerance and impacts. | The method has been updated since original version  (Pheloung et al., 1999; Copp et al., 2005; Tricarico et al., 2010). |
| BINPAS | Definitions of all parameters provided, the calculation scheme is clear, the result is obtained automatically using an *via* online system1 platform. | The evidence supporting assessment is documented, and available *via* online system1. | The assessment of the consistency was not available publicly. | One category (EN). | Five levels of risk (from minimum till high), except human health. | Level of confidence for each risk assessment step. | The method takes into account impacts, assess biological traits, part of assessment is based on quantitative and qualitative data. | The method has been updated since original version (Olenin et al., 2007) was computerized and renamed BINPAS/ Biopollution assessment system. |
| CIMPAL | Definitions of all parameters provided, the calculation scheme is clear, the result is obtained automatically. | The evidence supporting the assessment is not provided, available on request (n. o.). | The assessment of the consistency was not available publicly. | One category (EN). | Index defines the level of risk in general, sites specific value by environmental impact. | The ranking of sites based on the uncertainty-averse, the precautionary approach. | The method takes into account assessment of environmental tolerance limits and physical habitat characteristics. | The method has been updated since original version (Mazaris and Katsanevakis, 2018). |
| CMIST | Use of a method is supported by the questionnaire, definitions of parameters provided, the calculation scheme is clear, the result is obtained automatically. | The evidence supporting the assessment is documented and available *via* online system2. | The consistency of a method was tested (Drolet et al., 2016). | One category (EN). | The method defines final risk in general (except human health). | Incorporates level of confidence for all risk assessment steps. Clear instructions to define uncertainty is given, no confidence level for the final score. | The method assesses biological traits, environmental tolerance limits, assessment is based on quantitative field and experimental data. | The method has been updated since original version, is a modification of the Alberta Risk Assessment Tool (IASWG 2009; Drolet et al., 2014; Drolet et al., 2015;). |
| GABLIS | The method is represented by a questionnaire, the calculation scheme is clear. | The evidence supporting the assessment is documented and available on request (n. o.). | The assessment of the consistency was not available publicly. | Three categories (EN, EC, HH). | The method defines species into ranks, management decisions included. | No level of confidence is included. | Data from scientific reports, peer-reviewed publications, expert judgement used. Assess biological traits (indirectly), environmental tolerance limits. | Only original version exists, has no update published version (Essl et al., 2012) |
| GB NNRA | The method is represented by questionnaire available online. No calculation scheme is included, the assessment is qualitative. | The evidence supporting the assessment is documented and available *via* online system3. | The assessment of the consistency was not available publicly. | Four categories (EN, EC, HH, SC) | The method defines the categories of risk in general. | Level of confidence for each assessment steps and for the final risk score. | The method assesses biological traits, environmental tolerance limits, probability of entry, establishment, spread and impacts. | The method has been updated since original version.  (Baker et al., 2008; Mumford et al., 2010). |
| GEIAA | Definitions of parameters are provided, the calculation scheme is clear, the result is obtained automatically. | The evidence supporting the assessment is available *via* online system4. | The assessment of the consistency was not available publicly. | One category (EN) (detailed SD, CO, PRP, HP, TI, TG, PR, PH) | The method defines the categories of impact in general, five categories (except human health). | Incorporates level of confidence for each assessment step, but not for the final score. No detailed information for uncertainty. | The method assesses biological traits (generation time, expected population lifetime, expansion velocity). | Only original version exists, has no update published version (Sandvik et al., 2013) |
| GISS | The method is represented by a questionnaire. The calculation scheme is clear. | The evidence supporting the assessment is documented and available on request. | The consistency of a method was tested (Evans et al.,  2014). | Two categories (EN, EC, HH, HS, HI). | The method defines the level of risk, including risk to human health. | Incorporates level of confidence for all each assessment step and for the final score. | The method uses published information, does not includes the biological traits or environmental tolerance limits. | The method has been updated since original version (Nentwig et al., 2016, Blackburn et al., 2014) |
| GISS IUCN | The method is represented by a questionnaire. Definitions of parameters are provided, the calculation scheme is clear, the result is obtained automatically. | The evidence supporting the assessment are documented and available on request. | The assessment of the consistency was not available publicly. | One category (EN). | The method defines the categories of impact in general (except human health). | Incorporates level of confidence for all steps and for the final score. Clear instructions to define uncertainty is given. | The method assesses impacts, based on literature overview, does not includes biological traits or environmental tolerance limits. | Only original version exists, has no update published version. |
| HARMONIA+ | The method is available online, definitions provided, the calculation scheme is clear, the result is obtained automatically. | The evidence supporting the assessment is documented and available *via* online system5. | The consistency of a method was tested (D’hondt et al., 2015). | Three categories (EN, EC, HH, HI). | The method clearly defines the categories of risk, from unacceptable to acceptable, including decision making. | Incorporates level of confidence for all risk assessment steps, but not for the final score. | The method assesses biological traits, environmental tolerance limits, assessment is based on quantitative field and/or experimental data. | The method has been updated since original version (D’hondt et al., 2016). |
| TRAAIS | The method is represented by a questionnaire, the calculation scheme is clear. | The evidence supporting the assessment are documented and available on request. | The assessment of the consistency was not available publicly. | Two categories (EN, EC). | The method defines the categories of risk in general (possible threating categories, except human health), no level of risks described. | Incorporates level of confidence for all risk assessment steps, but not for the final score. | The method assesses biological traits, environmental tolerance limits, assessment is based on quantitative field data. | Only original version exists, has no update published version. |
| GLOTSS | The method is represented by a questionnaire, the calculation scheme is clear, the assessment is qualitative. | The evidence is documented, available *via* online system6. | The assessment of the consistency was not available publicly. | One category (EN) | The method defines the categories of risk in general, no level of risks described, management question included. | Incorporates level of confidence documentation source, but not for the final score. | Indirectly assess biological traits (invasive potential, spread), assessment is based on quantitative field and/or experimental data. | Only original version exists, has no update published version. |
| WISC | The method is represented by a questionnaire, the calculation scheme is clear, the assessment is qualitative. | The evidence supporting the assessment are documented and available on request. | The assessment of the consistency was not available publicly. | Two categories (EN, EC). | The method defines the categories of risk in general, level of risks described, management question included. | Incorporates level of confidence for each assessment step and for the final score. | Indirectly assess biological traits (potential for entry, spread), assessment is based on quantitative field and/or experimental data. | The method has been updated since original version, adapted from Alaska’s ranking system. |
| SBRA | The method is represented by a questionnaire, the calculation scheme is clear, the assessment is qualitative. | The evidence supporting the assessment are documented and available on request. | The assessment of the consistency was not available publicly. | Four categories (EN, EC, HH, SC). | The method defines the categories of risk in general, level of risks described, management question included. | Incorporates uncertainty for risk part of assessment. | Assess biological traits, environmental tolerance limits, assessment is based on quantitative field and/or experimental data. | The method has been updated since original version. |
| RABW | The method is represented by a questionnaire, the assessment is qualitative. | The evidence  supporting the assessment are documented and available on request. | The assessment of the consistency was not available publicly. | Four categories (EN, EC, HH, SC). | The method clearly defines the categories of risk, from unacceptable to acceptable, including decision making. | Incorporates level of confidence for all risk assessment steps. | Assess biological traits, environmental tolerance limits, assessment is based on quantitative field and/or experimental data. | The method has been updated since original version. |

Explanation: Environmental - EN, human health - HH, economic – EC, social and cultural – SC, HS – human social life, HI – human infrastructure; n. o. - not freely available online;

BINPAS via online system1 - <http://www.corpi.ku.lt/databases/index.php/binpas>; CMIST via online system2 - <http://www.bio.gc.ca/science/monitoring-monitorage/cmist/index-en.php>; GB NNRA *via* online system3 - <http://www.nonnativespecies.org/alerts/index.cfm>; GEIAA *via* online system4 - <https://www.artsdatabanken.no>; HARMONIA+ *via* online system5 - <https://ias.biodiversity.be/species/risk>; <http://ias.biodiversity.be>; GLOTSS - *via* online system6 - <http://conserveonline.org/workspaces/global.invasive.assessment>;