

MULTI-FUNCTION INSECT STORAGE AND RELEASE CONTAINER SYSTEM

FIELD OF THE INVENTION

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The present invention relates to a multi-function insect storage and release container system. In particular, the present invention relates to a multi-function container system for storing, transporting and releasing insects into the environment.

10 BACKGROUND

There have been attempts made to control insect populations, in particular, those insects, e.g. mosquitoes which carry vector-borne diseases, such as dengue fever, malaria, etc. Some of these methods include controlling the populations by releasing
15 sterile males.

In such methods, the adult insects have to be collected, transported and released in multiple locations and at different quantities. Several types of release methods have been considered. One such method involves having the adult insects contained in a
20 vehicle. As the vehicle drives around the different locations, batches of adult insects are released from the vehicle. Such method is suitable for large, well-developed locations where a vehicle such as a van is able to navigate freely. However, such method is not suitable for locations where there are a large number of tall buildings. In such locations, the insects have to be released both at the ground level as well as at
25 higher levels. In such situations, a push cart containing the insects can be used to transport the insects to the higher levels of the building using lifts for release at the higher levels. However, there will be situations where the buildings do not have any lifts, or push carts are not allowed inside the buildings. In such cases, it would be necessary for a person to carry the containers containing the adult insects up the
30 flights of stairs to release the adult insects at the higher levels of the building.

Certain quantities of insects can be released at some pre-determined locations in the building. Another means of releasing the insects would involve using unmanned aerial vehicles (UAVs). These UAVs can be controlled to fly a flight path and the

carrier of the adult insects can release a quantity at specific locations during the flight path. This allows the insects to be released at specific locations and height.

Therefore, different locations would require the use of different methods for releasing
5 insects into the environments. An efficient system that is suitable for use in a variety of situations is therefore required.

It is therefore desirable to provide a single multi-function container system that can be easily adapted for use in different release methods with different requirements
10 that seeks to address at least one of the problems described hereinabove, or at least to provide an alternative.

SUMMARY OF INVENTION

15 In accordance with a first aspect of this invention, an insect storage and release container system is provided. The container system comprising a container, wherein the container comprises a first opening, a lid coupled to the first opening, the lid operable between a closed position to cover the first opening and an open position to uncover the first opening, wherein the lid is biased so as to normally assume the
20 open position, a second opening covered with a mesh material; and one or more plates disposed within the container, wherein the one or more plates are arranged in a manner to provide at least one passageway between the first opening and the second opening of the container.

25 In accordance with an embodiment of the first aspect of the invention, the container further comprises an inlet assembly disposed at the second opening of the container, covering at least a portion of the second opening, wherein the inlet assembly comprises an inlet in fluid communication with the container; a port disposed adjacent the inlet; and a second lid operable between a closed position to cover the inlet
30 assembly and an open position to uncover the inlet assembly, wherein the second lid is configured so as to normally assume the closed position.

In accordance with an embodiment of the first aspect of the invention, the container further comprises a latch assembly configured to engage with the lid at the first

opening for keeping the lid at the first opening in the closed position over the first opening.

In accordance with an embodiment of the first aspect of the invention, the container system further comprises a mechanism connected to the container for actuating the lid at the first opening between the closed position and the open position. In a further embodiment, the mechanism is configured to actuate the second lid between the closed position and the open position.

10 In accordance with an embodiment of the first aspect of the invention, the container further comprises a first funnel disposed in a space between the one or more plates and the second opening, the first funnel having a wider end positioned closer to the second opening.

15 In accordance with an embodiment of the first aspect of the invention, the container further comprises a second funnel disposed adjacent the first funnel, wherein the first funnel and the second funnel is separated by a wall to partition the container into a first compartment consisting of the first funnel and one or more plates and a second compartment consisting of the second funnel and the one or more plates; a further
20 lid provided for the second compartment for pivotally covering and uncovering the second compartment; and wherein the space between the two funnels and the second opening defines a third compartment.

In accordance with an embodiment of the first aspect of the invention, the container further comprises a first resilient means abutting against each of the lids at the first opening for urging each of the lids at the first opening to swing outwardly away from the container when each of the lids moves to the open position. In a further embodiment, the container further comprises a second resilient means abutting against the second lid and urging the second lid to stay in the closed position.

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In accordance with an embodiment of the first aspect of the invention, the container system further comprises a base compartment disposed at the second opening of the container. In a further embodiment, the container system further comprises a fan disposed within the base compartment.

In accordance with a second aspect of the invention, a method for storing insects into a container system and for releasing insects into the environment is provided. The method comprises allowing insects to travel into one or more containers of a container system through at least one of the openings of a corresponding container; activating a mechanism to actuate a lid provided at the at least one of the openings of each of the one or more containers to a closed position for storing insects within the one or more containers; activating the mechanism to actuate the lid provided at the at least one of the openings of each of the one or more containers or a second lid disposed at another opening of each of the one or more containers to an open position for releasing the insects within the one or more containers into the environment; and activating one or more fans to generate a flow of air into one or more containers to encourage movement of the insects within the one or more containers towards the opening with the lid in the open position of each of the one or more containers.

In accordance with an embodiment of the second aspect of the invention, the method comprises activating the mechanism to selectively actuate the lid of the one or more containers to the open position to release the insects stored in the selected one or more containers.

In accordance with an embodiment of the second aspect of the invention, the method comprises activating the mechanism to actuate the lids of all the containers all at once to release the insects stored in all of the containers.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying figures illustrate embodiments and serve to explain principles of the disclosed embodiments. It is to be understood, however, that these figures are presented for purposes of illustration only, and not for defining limits of relevant inventions. Particularly,

Figure 1 illustrates an insect storage and release container system according to a first embodiment of the present invention.

Figure 2 illustrates an insect storage and release container system according to a second embodiment of the present invention.

- 5 Figure 3 illustrates an insect storage and release container system comprising two containers according to a third embodiment of the present invention.

Figure 4 illustrates an insect storage and release container system comprising two funnels according to a fourth embodiment of the present invention.

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Figure 5 illustrates an insect storage and release container system that is connected to a portion of a device for feeding adult insects into the container of the container system of the present invention.

- 15 Figure 6 illustrates an inverted insect storage and release container system of Figure 1 for use in housing pupae to be hatched into adult insects.

Figure 7 illustrates an insect storage and release container system of Figure 4 that is connected to a portion of a device for feeding adult insects into the container of the
20 container system of the present invention.

Figure 8 illustrates an insect storage and release container system comprising at least one fan according to a fifth embodiment of the present invention.

- 25 Figure 9 illustrates an insect storage and release container system comprising at least one fan of the embodiment of Figure 4.

DETAILED DESCRIPTION

- 30 The present invention aims to provide a useful container system for storing insects within the container system and for releasing the insects stored within the container system. The container system is configured to be able to accommodate a variety of release methods and store as many insects as possible for transporting the insects from one point to another, without causing too much or any harm or damage to the

insects. The container system is configured to be suitable for use in collecting adult insects as the adult insects hatch from pupae.

5 The term "insects" as used herein refers to mosquitoes, house flies, moths, and any insects that fly.

Exemplary, non-limiting embodiments of the present application will now be described with references to the above-mentioned figures.

10 Referring to Figure 1, an insect storage and release container system is provided. The container system comprises a container 100. The container comprising a first opening 100a and a second opening 100b.

15 The first opening and the second opening can be provided at any portion of the container, such as on the peripheral wall of the container or at each of the top and bottom end of the container. Preferably, the first opening and the second opening are positioned in a spaced-apart manner such as to create a greater passageway from the first opening to the second opening within the container. This is to encourage better distribution of insects within the container as the insects move from the first opening to the second opening, which in turn, allows higher quantity of insects to be stored in the container. In one embodiment, the first opening is provided at upper peripheral wall of the container while the second opening is provided at lower peripheral wall diagonally opposite the first opening. In the exemplary embodiment as shown in Figure 1, the first opening 100a is provided at the top end of the container and the second opening 100b is provided at the lower end of the container.

25 The container 100 comprises a lid 101 operable between a closed position to cover the first opening 100a of the container and an open position to uncover the first opening 100a of the container. The lid 101 can be attached to any suitable part of the container proximate to the first opening of the container. In one embodiment, the lid 101 is pivotally mounted to the first opening such that the lid 101 pivots about an angle 111 between the closed position and the open position. The angle 111 is between 0° to 90° relative to the first opening. The lid 101 is configured to normally assume the open position. The angle 111 at which the lid is in a normally open

position can be any angle within the said range as long as there is sufficient space between the lid and the first opening to allow insects to travel from within the container into the environment.

- 5 Any suitable means can be used to provide the pivotal movement of the lid 101 from the closed position to the open position and vice versa. In one exemplary embodiment, a resilient means 105a is used. The resilient means 105a abuts against the lid 101 and urges the lid 101 to pivotally swing outwardly away from the container to uncover the first opening when the lid 101 moves to the normally open position.
- 10 The resilient means 105a can abut against the lid 101 in any suitable manner. In one exemplary embodiment as shown in figure 1, the lid 101 has a protrusion 102a. The resilient means 105a abuts against the protrusion 102a to urge the lid 101 to swing outwardly away from the container to uncover the first opening.
- 15 In one embodiment, a latch assembly 103 is provided to engage with the lid 101 at the first opening for keeping the lid 101 at the first opening in the closed position over the first opening. Any suitable type of latch can be used without departing from the present invention. In the exemplary embodiment as shown in figure 1, the latch is an L-shaped latch having one end abutting the lid 101 and another end connected to
- 20 the side wall of the container. When the lid 101 is in the closed position, one end of the lid 101 engages with the latch assembly 103 while the opposite end being urges by the resilient means 105a. When the latch assembly disengages with the lid 101, the force from the resilient means 105a urges the lid 101 to move away from the container to assume the normally open position. This uncovers or opens the
- 25 container.

- Any suitable type of lid 101 can be used in the present invention. The lid 101 can be made of the same or different material as the body of the container. The lid 101 can be detachably and pivotally attached to the container or the lid 101 can be pivotally
- 30 fixed to the container. In one embodiment, the lid 101 is a flat cover as shown in figure 1. In an alternative embodiment as shown in figure 2, the lid has a cavity with an extension 202 at opposite end of a pivotal point 107a for engaging with the latch assembly 103 for keeping the lid 101 in place over the first opening of the container when the lid 101 is in the closed position.

In one embodiment, at least a portion of the lid 101 is made of a mesh material. In other embodiment, the entire lid is made of a mesh material. Any suitable mesh materials may be employed without departing from the present invention. Such mesh materials include a large variety of mesh or mesh-like structures. Some examples of such materials include, but are not limited to, any types of plastics, metal, fabric, woven or non-woven material, etc. The mesh can be made of the same or different material as the container. A suitable mesh can have, among other things, a plurality of openings with each opening having a diameter of less than 5mm or preferably, less than 1 mm. The openings of the mesh material should be small enough to prevent insects from escaping through the mesh and big enough to allow sufficient air to flow into the container to provide a supply of air for the insects when the insects are stored in the container.

In one embodiment, the second opening 100b is covered with a mesh 108. The mesh can be of the same or a different type of mesh as used for the lid at the first opening. The mesh comprises as a plurality of openings 108a with each opening having a diameter of less than 5mm or preferably, less than 1 mm. The openings 108a of the mesh should be small enough to prevent insects from escaping through the mesh and big enough to allow sufficient air to flow into the container to provide a supply of air for the insects when the insects are stored in the container.

Depending on the delivery and release mechanism, it is desirable to maximize the quantity of insects that can be stored within the container system. During the transportation of the container system, the adult insects would often fly around within the container system. The adult insects may knock into each other and damage their wings and appendages if insufficient space is provided within the container system. Some methods of transportation involves freezing the adult insects to keep them immobile thus able to pack more insects in a single container. However, such methods may still result in damages to the adult insects. To alleviate these problems, the container of the present invention is further provided with one or more plates 120 disposed within the container. The one or more plates are arranged in a manner to provide at least one passageway between the first opening and the second opening within the container. The arrangement of the one or more plates is not limited to any

specific arrangement. The one or more plates are provided to increase the overall wall surface areas within the container to allow the adult insects to rest on during transportation. At the same time, the one or more plates increases the quantity of the number of insects that can be stored within the container system.

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The one or more plates can be arranged in a spaced-apart manner in an array or randomly. The one or more plates can be arranged in an axis substantially parallel to the wall of the container or at an angle to the horizontal plane of the container. In all the embodiments, the one or more plates should be arranged such as to provide one or more passageways for insects to travel from the one opening to another opening. Any suitable number of plates can be employed without departing from the present invention. In the exemplary embodiment shown in figure 1, four plates are provided and the plates are arranged in a spaced-apart array.

15 The one or more plates can be arranged such as to segment the container into different compartments within the container. The plurality of compartments allow control over the quantity of insects to be released into the environment as one can selectively choose to release insects from one or more compartments. The first opening of the container can be segmented based on the manner in which the one or more plates segment the area within the container. Each of the first opening of the corresponding compartment is provided with a further lid at the first opening. The lid of each of the compartments can be selectively actuated to release the insects within the selected compartment. In one embodiment, the gaps between any two plates are at least 1.0 cm or more so as to provide sufficient space for the insects to fly or move between the plates within the container.

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Depending on the species of the insects, the inner wall of the container and/or the one or more plates can be made of a dark colour material so that the insects are encouraged to fly towards and out to the brighter surroundings outside the container.

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The container 100 further comprises an inlet assembly 109 disposed at the second opening 100b of the container. The inlet assembly 109 comprises an inlet 109a in fluid communication with the container and a port 110 disposed adjacent the inlet 109a. The inlet assembly 109 is positioned to cover at least a portion of the second

opening or the entire second opening. In the exemplary embodiment as shown in figure 1, the inlet assembly 109 covers a portion of the second opening. The remaining portion of the second opening is covered with the mesh 108.

5 A second lid 106 is provided to cover and uncover the inlet assembly 109. The second lid can be attached to the container or the inlet assembly. In one embodiment, the second lid 106 is pivotally attached to the inlet assembly 109 such that the second lid is pivotally operable between a closed position to cover the inlet assembly and an open position to uncover the inlet assembly. The second lid pivots about an angle
10 112 between the closed position and the open position. The angle 112 is between 0° to 90° relative to the second opening. The second lid can be at any angle within the said range when the second lid is in the open position as long as there is sufficient space between the second lid and the second opening to allow insects to travel into the container through the inlet 109a or to allow sufficient air flow into the container to
15 encourage movement of insects towards the first opening of the container.

In one embodiment, the second lid 106 is biased so as to normally assume the closed position. The second lid 106 is disposed within the container such that the second lid pivotally swings inwards when the second lid is in the open position. Any suitable
20 means can be used to provide a pivotal movement of the second lid from the closed position to the open position and vice versa. In one exemplary embodiment, a second resilient means 105b is used. The second resilient means 105b abuts against the second lid and urges the second lid to normally assume the closed position. The second resilient means 105b can abut against the second lid 106 in any suitable
25 manner. In one exemplary embodiment as shown in figure 1, the second lid has a protrusion 106a and the second resilient means 105b abuts against the protrusion 106a to urge the second lid to stay in the closed position.

The second lid is configured to be actuated by inserting an actuation block 301
30 through the port 110 in a direction 302 as shown in figure 5 to push and urge the second lid 106 to pivotally move from the closed position to the open position. This causes the second lid 106 to move inwardly into the container to uncover the inlet assembly. Insects travel into the container through the uncovered inlet assembly. When the actuation block 301 is removed from the port 110, the force from the

second resilient means 105b urges the second lid 106 to move to the normally closed position. In one embodiment, the second lid 106 has a size sufficient to cover the entire inlet assembly consisting of the inlet 109a and the port 110. In other embodiment, the second lid covers a portion of the inlet assembly including the port and a portion of the inlet. The portion of the inlet assembly which is not covered by the second lid covered by a mesh.

The container system of the present invention further comprises a mechanism connected to the container for actuating the lid at the first opening between the closed position and the open position. The mechanism can also be configured for actuating the second lid 106 between the closed position and the open position.

In a second embodiment of the present invention, the container system comprises two containers adjoined together as a single integral unit. An exemplary embodiment of this configuration is shown in figure 3. The container system comprises two containers adjoined by a wall 208, two lids 202 at the first openings, two latches 204, two inlet assemblies 301 and two second lids 302. The two lids 202 at the first openings are pivotally mounted to the containers at the same pivotal point 205.

In another embodiment, the container further comprises a first funnel 203 disposed in a space between the one or more plates and the second opening 100b. The first funnel is positioned with the wider end placed closer to the second opening. The funnel is to provide a guided passageway for the insects to travel from the second opening to the first opening. The surfaces of the funnel also provides areas for insects to rest during storage and transportation. The funnel may be made of any suitable material. In one embodiment, the funnel surface is made of a mesh material having a mesh size of less than 1 mm.

Figure 4 shows yet another embodiment of the container system according to the present invention. In this embodiment, the container 400 comprises a second funnel 211 disposed adjacent the first funnel 203 such that the first funnel and the second funnel is separated by a wall 208 to partition the container into a first compartment consisting of the first funnel 203 and one or more plates and a second compartment consisting of the second funnel 211 and one or more plates. Each of the compartment

is provided with a lid 202 at the first opening for pivotally covering and uncovering the first opening. In the configuration shown in figure 4, only one inlet assembly is provided. One skilled in the art will appreciate that other configurations consisting of more than one inlet assembly can also be employed without departing from the present invention. The space between the two funnels and the inlet assembly defines a third compartment 401.

Figures 8 and 9 show further embodiments whereby each of the container is coupled to a base compartment 505 disposed at the second opening of the container. In one embodiment, the base compartment 505 is configured to house a fan 504. The fan is operable to provide a positive airflow pressure within the container to push the insects towards the first opening and out of the container when the first opening of the container is in the open position. In one embodiment, a plurality of fans can be placed in the base compartment. The base compartment allows each container to be attached to the base compartment and be held in place. The fan can be selectively operated based on the container selectively chosen to release the insects within the container and the selective operation is controlled by a controller (not shown).

One will appreciate that any suitable type of fan can be used without departing from the present invention. The fan can be operated by any suitable means. The fan can be electrical fan or battery operated fan. The fan can be of any suitable power and the wind generated by the fan should be sufficient to encourage the insects to move towards the first opening but not too strong to cause harm to the insects.

In another embodiment, the container system comprises a plurality of containers. The plurality of containers can have substantially the same configurations or different configurations. The container system may further include a frame structure 501 for supporting and holding the plurality of containers in place. The plurality of containers can be arranged in any suitable manner. The plurality of containers can be arranged in an array or randomly. In some embodiments, the container system is configured to be stackable with one another to facilitate transportation and storage of the container system.

In some embodiments, the container system comprises a handle to facilitate the handling and transportation of the container system. One or more handles can be provided.

5 In one exemplary embodiment, the container system comprises six or more containers arranged in a handheld frame. In other embodiment, the container system is in a form of a backpack which a user can carry around. The controller of the container system allows the user to actuate one or more lids of the corresponding containers when the user reaches the desired location to release the insects within
10 the containers. In yet another embodiment, the container system comprising the plurality of containers can be configured into a trolley to be pushed around, allowing user to selectively release the insects within the plurality containers as the trolley is being pushed around.

15 In various embodiments, the container is cylindrical. In other embodiments, the container is a cylinder having different cross-sections including, but not limited to, square, rectangular, polygonal, etc. One skilled in the art will appreciate that any types and shapes of the container may be employed without departing from the present invention.

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Besides the consideration of how the insects are to be released, it is also necessary to accommodate how the adult insects are to be stored inside the container system in the first place. The adult insects may or may not need to be sorted by sexes prior to storing into the container system. Pupae have to be cultivated and wait until the
25 pupae hatched into adult insects. Once hatched, the container system should easily be used to collect the adult insects as they fly into the container system. In one alternative embodiment, the lid at the first opening is configured to house pupae within the container. The pupae are stored and allowed to hatch into adult insects in the container system. When the container system is used for this purpose, the
30 container system is turned upside down to a position whereby the lid 101 at the first opening is positioned below the second opening. Figure 6 illustrates one of such embodiment of the present invention.

The container system of the present invention provides a fast and simple way of releasing insects into the environment. The mechanism used in the container system is simple to operate. It requires at least one lid to operate in a “normally open” configuration. Resilient means is provided to push on the lid at all times when the lid is in a closed position. A latch assembly helps to keep the lid in the closed position. When the latch assembly is actuated to release the engagement on the lid, the lid becomes free to swing into the open position and will remain open until the lid is being pushed back to the closed position. This feature provides a fast and simple way of releasing the insects inside the container into the environment.

In another embodiment, the mechanism requires a second lid to operate in a “normally closed” configuration. A second resilient means is provided to push on the second lid to keep the second lid in the closed position. An actuation block is required to push on the second lid to move the second lid to the open position. Once the actuation block is removed, the second resilient means pushes the second lid back to resume the “normally closed” position. This feature is useful for use in the lid that assists in getting the insects into the container as it allows the lid to close back quickly to avoid any insects from escaping from the container during the process of feeding insects into the container.

The mechanism of the container system is controlled by the controller (not shown). The controller activates the mechanism of the container system to selectively actuate the lids at the first opening of the corresponding one or more containers from the closed position to the open position to release the insects within the selected container. The ability to control which lids at the first opening to actuate allows the insects to be released in batches.

In another aspect of the present invention, a method for storing insects inside a container system and for releasing insects into the environment is provided. The method comprises allowing insects to travel into a container of a container system through at least one of the openings of a corresponding container; activating a mechanism to actuate a lid provided at the at least one of the openings of the container to a closed position for storing insects within the container; activating the mechanism to actuate the lid provided at the at least one of the openings of the

container or a second lid disposed at another opening of the container to an open position for releasing insects within the container into the environment; and activating a fan to generate a flow of air into the container to encourage movement of the insects within the container towards the opening with the lid in the open position.

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In one embodiment, the method comprises allowing insects to travel into one or more containers of a container system through at least one of the openings of a corresponding container, activating a mechanism to actuate a lid provided at the at least one of the openings of each of the one or more containers to a closed position
10 for storing insects within the one or more containers, activating the mechanism to actuate the lid provided at the at least one of the openings of each of the one or more containers or a second lid disposed at another opening of each of the one or more containers to an open position for releasing the insects within the one or more containers into the environment; and activating one or more fans to generate a flow
15 of air into one or more containers to encourage movement of the insects within the one or more containers towards the opening with the lid in the open position of each of the one or more containers.

In yet another embodiment, the method comprises allowing insects to travel into a
20 container of a container system through an inlet assembly disposed at an opening of the container; activating a mechanism to actuate a lid provided at the inlet assembly to a closed position to store the insects within the container; activating the mechanism to actuate a second lid disposed at a second opening of the container for releasing insects within the container into the environment; and activating a fan
25 to generate a flow of air into the container to encourage movement of the insects within the container towards the second opening of the container.

In yet a further embodiment, the method comprises allowing insects to travel into one or more containers of a container system through one or more inlet assemblies
30 disposed at an opening of a corresponding container, activating a mechanism to actuate a lid provided at the inlet assembly of each of the one or more containers to a closed position for storing insects within the one or more containers, activating the mechanism to actuate a second lid disposed at another opening of each of the one or more containers to an open position for releasing the insects within the one or

more containers into the environment; and activating one or more fans to generate a flow of air into one or more containers to encourage movement of the insects within the one or more containers towards the another opening of each of the one or more containers.

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In some embodiments, the release of the insects into the environment is carried out by activating the mechanism to selectively actuate the lid of one or more containers to the open position to release the insects stored in the selected one or more containers into the environment. In another embodiment, the method comprises
10 activating the mechanism to actuate the lids of all the containers all at once to release all the insects stored in all of the containers of the container system.

In the application, unless specified otherwise, the terms "comprising", "comprise", and grammatical variants thereof, intended to represent "open" or "inclusive"
15 language such that they include recited elements but also permit inclusion of additional, non-explicitly recited elements.

The above is a description of the subject matter the inventors regard as the invention and is believed that those skilled in the art can and will design alternative
20 embodiments that include of this invention as set forth in the following claims.

CLAIMS

1. An insect storage and release container system comprising:
a container, the container comprising:
5 a first opening;
 a lid coupled to the first opening, the lid operable between a closed position to cover the first opening and an open position to uncover the first opening, wherein the lid is configured so as to normally assume the open position;
10 a second opening covered with a mesh; and
 one or more plates disposed within the container, wherein the one or more plates are arranged in a manner to provide at least one passageway between the first opening and the second opening of the container.
- 15 2. The insect storage and release container system of claim 1, wherein the container further comprises:
 an inlet assembly disposed at the second opening of the container, covering at least a portion of the second opening, wherein the inlet assembly comprises:
20 an inlet in fluid communication with the container;
 a port disposed adjacent the inlet; and
 a second lid operable between a closed position to cover the inlet assembly and an open position to uncover the inlet assembly, wherein the second lid is biased so as to normally assume the closed position.
25 position.
3. The insect storage and release container system of claim 1, wherein the lid at the first opening is pivotally connected to the first opening of the container.
- 30 4. The insect storage and release container system of claim 1, wherein the container further comprises:
 a latch assembly configured to engage with the lid at the first opening for keeping the lid at the first opening in the closed position over the first opening.

5. The insect storage and release container system of claim 4, wherein the container further comprises:

a first resilient means abutting against the lid at the first opening for urging the lid at the first opening to pivotally swing outwardly away from the container to the normally open position when the latch assembly disengages with the lid at the first opening.

6. The insect storage and release container system of claim 1, wherein the second lid is pivotally connected to the inlet assembly.

7. The insect storage and release container system of claim 1, wherein the second lid is disposed within the container such that the second lid pivotally swings inwards when the second lid moves from the closed position to the open position.

8. The insect storage and release container system of claim 1, further comprising:

a mechanism connected to the container for actuating the lid at the first opening between the closed position and the open position.

9. The insect storage and release container system of claim 8, wherein the mechanism is configured to actuate the second lid between the closed position and the open position.

10. The insect storage and release container system of any one of the preceding claims, wherein at least a portion of the lid at the first opening is a mesh.

11. The insect storage and release container system of any one of the preceding claims, wherein the container system comprises two containers adjoined together as a single integral unit.

12. The insect storage and release container system according to any one of claims 1 to 10, wherein the container further comprises:

a first funnel disposed in a space between the one or more plates and the second opening, the first funnel having a wider end positioned closer to the second opening.

- 5 13. The insect storage and release container system of claim 12, wherein the container further comprises:

a second funnel disposed adjacent the first funnel, wherein the first funnel and the second funnel is separated by a wall to partition the container into a first compartment consisting of the first funnel and one or more plates and a second
10 compartment consisting of the second funnel and the one or more plates;

a further lid provided for the second compartment for pivotally covering and uncovering the second compartment; and

wherein the space between the two funnels and the second opening defines a third compartment.

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14. The insect storage and release container system of claim 13, wherein the container further comprises:

a latch assembly for each of the lids provided at the first opening for keeping each of the lids in the closed position over the first opening of the container.

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15. The insect storage and release container system of any one of claims 13 to 14, wherein the container further comprises:

a first resilient means abutting against each of the lids at the first opening for urging each of the lids at the first opening to swing outwardly away from the
25 container when each of the lids moves to the open position.

16. The insect storage and release container system of any one of the preceding claims, wherein the container further comprises:

a second resilient means abutting against the second lid and urging the
30 second lid to stay in the closed position.

17. The insect storage and release container system of any one of the preceding claims, wherein the second lid is actuated via insertion of an actuation block through the port.

18. The insect storage and release container system of any one of the preceding claims, wherein the container is cylindrical.

5 19. The insect storage and release container system of any one of the preceding claims, wherein the lid at the first opening is adapted to house pupae within the container when the container is in an inverted position.

20. The insect storage and release container system of any one of the
10 preceding claims, further comprising:
a base compartment disposed at the second opening of the container.

21. The insect storage and release container system of claim 20, further
comprising:
15 a fan disposed within the base compartment.

22. The insect storage and release container of any one of the preceding claims,
wherein the insect storage and release container is configured to be stackable with
another of the insect storage and release container.

20 23. The insect storage and release container system of any one of the
preceding claims, further comprising:
a plurality of containers; and
a frame structure for supporting the plurality of containers.

25 24. The insect storage and release container system of any one of the
preceding claims, further comprising:
a handle to facilitate the transportation of the container system; and
a controller to activate the mechanism to selectively actuate the lid at the
30 first opening of the corresponding container from the closed position to the open
position.

25. A method for storing insects into a container system and for releasing
insects into the environment, the method comprising:

allowing insects to travel into one or more containers of a container system through at least one of the openings of a corresponding container;

activating a mechanism to actuate a lid provided at the at least one of the openings of each of the one or more containers to a closed position for storing
5 insects within the one or more containers;

activating the mechanism to actuate the lid provided at the at least one of the openings of each of the one or more containers or a second lid disposed at another opening of each of the one or more containers to an open position for releasing the insects within the one or more containers into the environment; and

10 activating one or more fans to generate a flow of air into one or more containers to encourage movement of the insects within the one or more containers towards the opening with the lid in the open position of each of the one or more containers.

15 26. The method of claim 25, further comprising:

activating the mechanism to selectively actuate the lid of the one or more containers to the open position to release the insects stored in the selected one or more containers.

20 27. The method of claim 25, further comprising:

activating the mechanism to actuate the lids of all the containers all at once to release the insects stored in all of the containers.