Manual annotations of SMB scenes : Pattern analysis

following https://doi.org/10.1145/2427116.2427117
Using maps from https://nesmaps.com/maps/SuperMarioBrothers/SuperMarioBrothers.html

Level segmentation procedure - setting up the env

1- Create a virtual env

2- Install stable-retro following the dev installation guide

3- Clone mario dataset + mario.stimuli through datalad

4- To have access to the spreadsheet with all the values regarding the segmentation:

    1- Go inside the mario directory

    2- Make sure to be using the events branch: git checkout events

    3- cd code/scenes/

    4- open and edit scenes_mastersheet.csv (see next slide)

Level segmentation procedure - doing the thing !

5- Proceed to the segmentation of the level in this GSlides

6- For every segmented scene, annotate the content based on the different game patterns as defined in Table 1 of [Dahlskog & Togelius (2012)](#)

7- Add the info about the content of the scene in the scenes_mastersheet.csv

8- To get the Entry point and the Exit point of the scene:

    1- Open the GUI: cd stable-retro and ./gym-retro-integration

    2- Load game (select the rom.nes file in the mario.stimuli/SuperMarioBros-Nes directory)

    3- Load state… Use to select a specific state/level

    4- To see the value: Window/Show scenario info… in the GUI

    5- Look for: level_layout; player_x_posHi; player_x_posLo

    6- To get the actual value for Entry/Exit point: player_x_posHi * 256 + player_x_posLo

Level annotation procedure - validating the thing !

To make sure the annotations make sense for all the segmented scenes, one proposition is to visualize the gameplays across trials and participants for each scene.

1- Make sure you ran datalad get sub*/ses*/func/*event* and datalad get sub*/ses*/gamelogs/*bk2

2- Run the clip_extractor.py script to segment the gameplays in scene:
    python clip_extractor.py --datapath <path_to_bids_dataset> --output <path_to_save_outputs> --clip_extension mp4

3- Check if the annotations we have done bellow watch what is happening in the scenes. Add your observation to this google slides for each corresponding level

Level annotation procedure - automating the thing !

[Insert steps]

w1l1

Scene 0 :
- Beginning

Scene 1 :
- Enemy
- 2-path
- Risk/reward
- Roof

Scene 2 :
- Empty valley

Scene 3 :
- Enemy valley
- Enemy

Scene 4 :
- Enemy valley
- 2-hord

Scene 5 :
- Gap
- 2-path

Scene 6 :
- Gap
- 3-path
- Risk/reward
- 2-hord

Scene 7 :
- Gap
- 3-path
- Risk/reward
- 2-hord

Scene 8 :
- 3-path
- Risk/reward
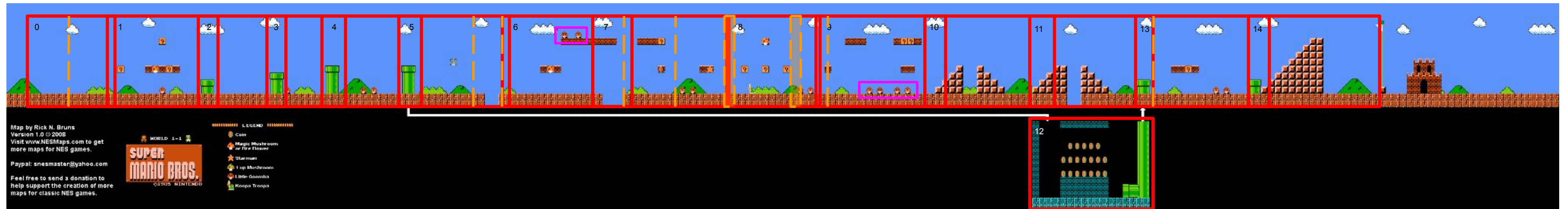- 2-hord
- Enemy

Scene 9 :
- 3-path
- Risk/reward
- 4-horde

Scene 10 :
- Enemy stair valley
- Stair up

Scene 11 :
- Gap stair valley

Scene 13 :
- 2-path
- 2-horde
- R/R
- Roof

Scene 14 :
- Stair up
- Flagpole

Scene 12 :
- Reward

Map by Rick N. Bruns
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help support the creation of more
maps for classic NES games.

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WORLD 1-1

LEGEND

- Coin
- Magic Mushroom or Fire Flower
- Starman
- 1 up Mushroom
- Little Goomba
- Koopa Troopa

w1l2

Scene 0 :
- 2-hord
- 2-path
- Risk-reward

Scene 1 :
- Enemy stair valley
- 2-path
- 2-path
- Risk-reward

Scene 2 :
- 2-hord
- 2-path
- Risk-reward
- Roof

Scene 3 :
- 3-hord
- Reward
- Roof

Scene 4 :
- Enemy
- 2-hord
- 3-path
- Risk-reward
- Roof

Scene 5 :
- Gap
- 2-path
- Reward

Scene 6 :
- 3-hord
- Enemy valley
- Pipe valley

Scene 8 :
- Pillar gap

Scene 9 :
- Stair up
- 2-hord
- Enemy
- 2-path
- Gap
- Moving platform
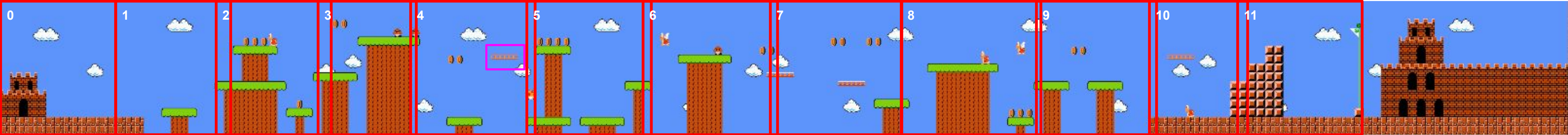
Scene 10 :
- Risk/Reward
- Gap
- Moving platform
- Roof

Scene 11 :
- Stair up
- Flagpole

Scene 7 :
- Reward

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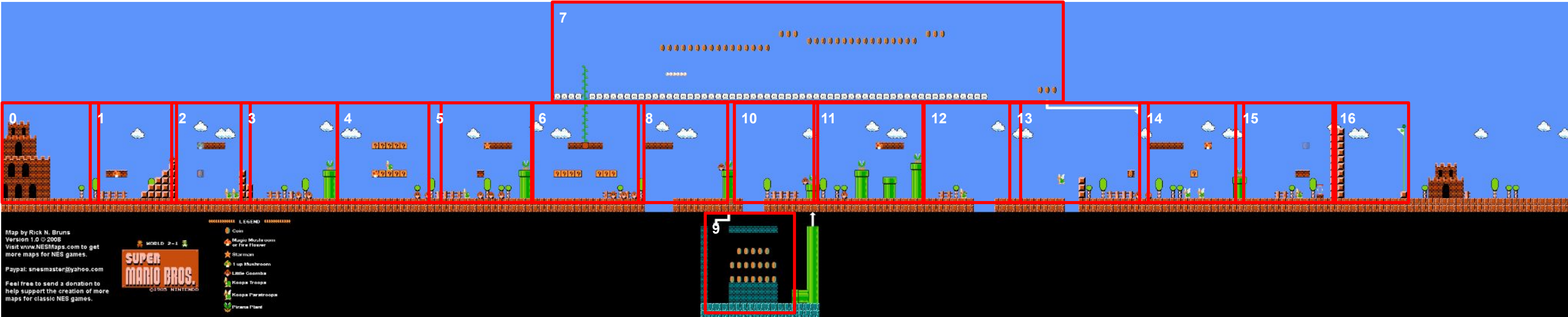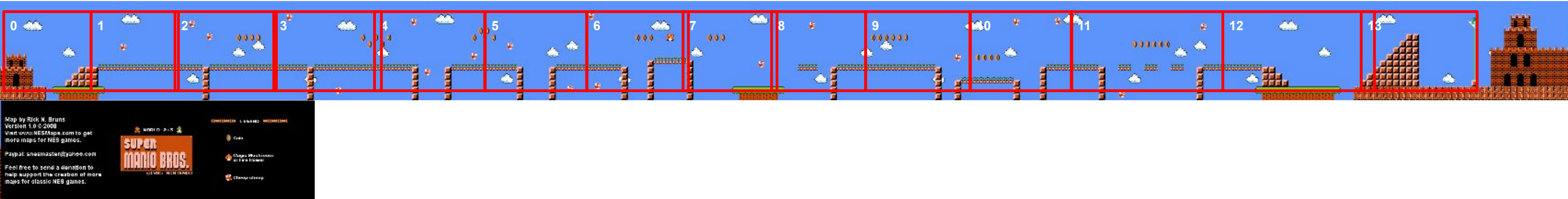Feel free to send a donation to help support the creation of more maps for classic NES games.

WORLD 1-2

SUPER MARIO BROS.
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LEGEND

Coin
Magic Mushroom or Fire Flower
Starman
1 up Mushroom
Little Goomba
Koopa Troopa
Pirana Plant

w1l3

0	1	2	3	4	5	6	7	8	9	10	11
- Beginning	- Multiple gaps	- 2-Path - Enemy - Multiple gaps	- 2-horde - Gap	- Multiple gaps - 2-path - Moving platform	- Multiple gaps - 2-path - Risk/Reward	- Multiple gaps - 2-horde	- Multiple gaps - Moving platform	- Multiple gaps - 2-horde	- Multiple gaps	- Moving platform - Enemy	- Stair up Flagpole

w2l1

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
- Beginning	- 2-path - Stairs up - Roof	- 2-path - 2-hord - Risk/Reward	- Enemy valley - 2-hord	- 2-hord - 3-path - Risk/Reward - Enemy - Roof	- 3-hord - 2-path - Risk/Reward	- 3-hord - 3-path - Roof	- Bonus zone - Moving platform	- 2-path - enemy - gap	- bonus zone	- Gap - enemy -	- Enemy valley - Empty valley - 2-path - Risk/Reward	- gap - enemy	- gap - enemy	- 4-hord - 2-path - risk/reward	- enemy - 2-path - roof	- flagpole

w2l3

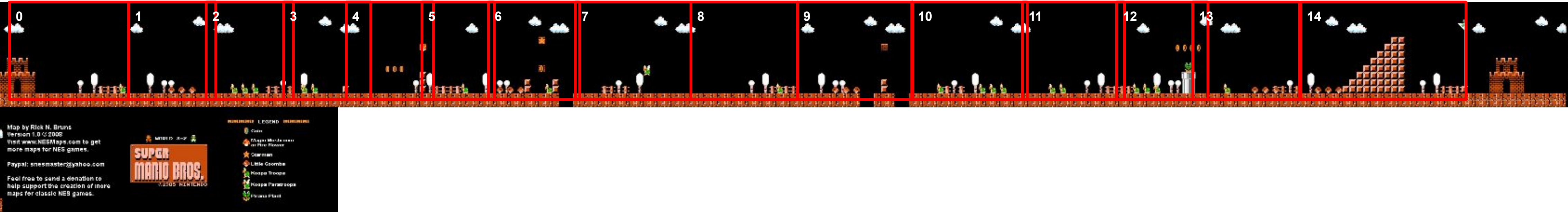| 0	1	2	3	4	5	6	7	8	9	10	11	12	13
- Beginning - Stair up - Gap	- Enemy	- Enemy	- Enemy	- Enemy - Gap	- Enemy - Gap	- Enemy - Gap - Risk/Reward	- Enemy - Gap	- Enemy - Variable gaps	- Enemy - Gap	- Enemy - Gap	- Enemy - Multiple gaps	- Enemy - Gap - Stairs down	- Stairs up - Flagpole

w3l1

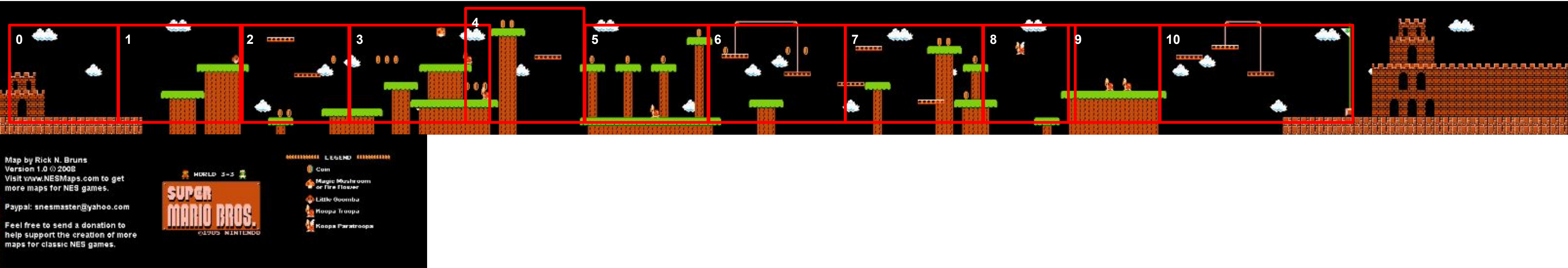| 0	1	2	3	4	5	6	7	8	9	10	11	12
- Beginning	- 2-hord - Risk/reward - Roof	- Enemy valley - Gap	- 3-hord enemy valley - Roof - 2-path	- Bonus zone	- stairs up - 3-hord - gap -	- 2-hord - Enemy valley - 2-path - Risk/reward -	- 3-path - Risk/reward - Enemy - Roof	- 3-path - Stairs up - 2-hord - Gap -	- Bonus zone	- 3-hord - Enemy - 3-path - Risk/reward - Roof	- Roof - Enemy - 3-hord - Gap	- 2-hord - Stairs up - Flagpole

w3l2

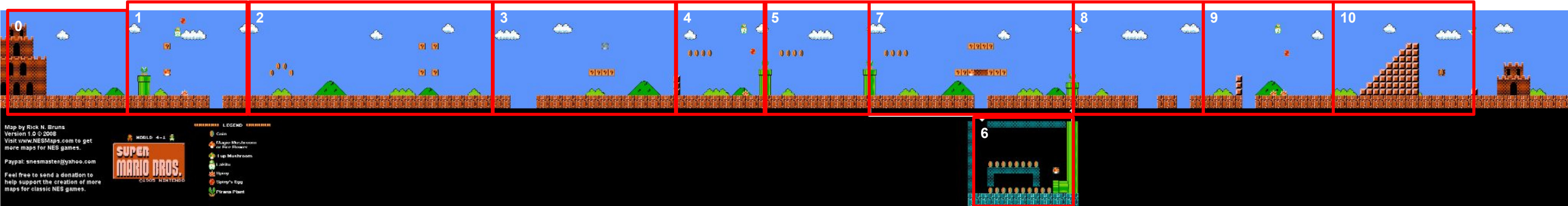| 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
- Beginning - Enemy	- 3-hord	- 3-hord	- 2-hord	- Empty valley	- Risk/Reward - Enemy valley	- Enemy valley - 3-hord - Roof - Risk/Reward - gap	- Enemy	- Enemy	- 3-hord - Multiple gaps	- Enemy - 3-hord	- 2-hord	- 3-hord	- Enemy - 3-hord	- 3-hord - Stairs up - Flagpole

w3l3

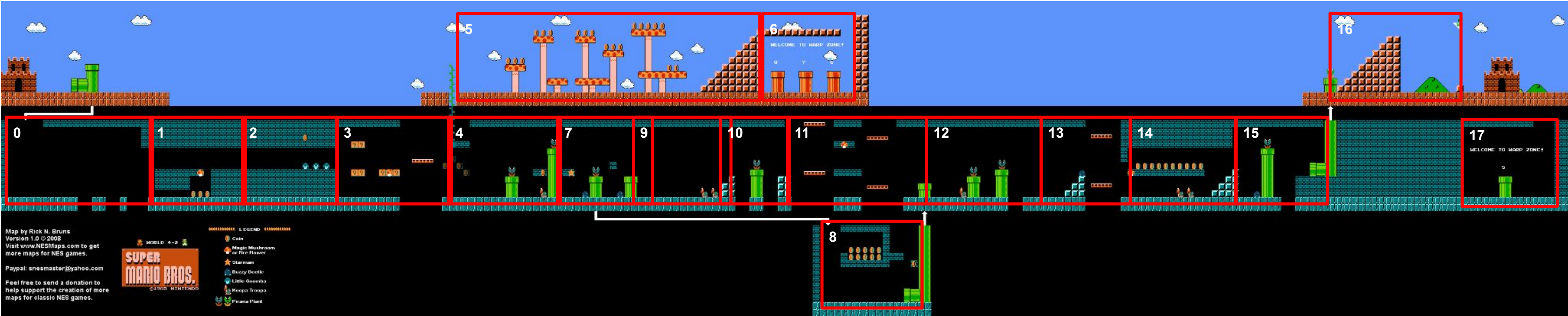| 0	1	2	3	4	5	6	7	8	9	10
- Beginning	- Gap - Enemy	- Moving platform - Variable gaps	- Gap - Risk/Reward - Enemy - 2-path	- Moving platform - gap	- Enemy - 2-path	- Moving platforms - Variable gaps	- Moving platforms - Variable gaps - 2-path	- Gap - Enemy	- 2-hord	- Moving platforms - Variable gaps - Flagpole

w4l1

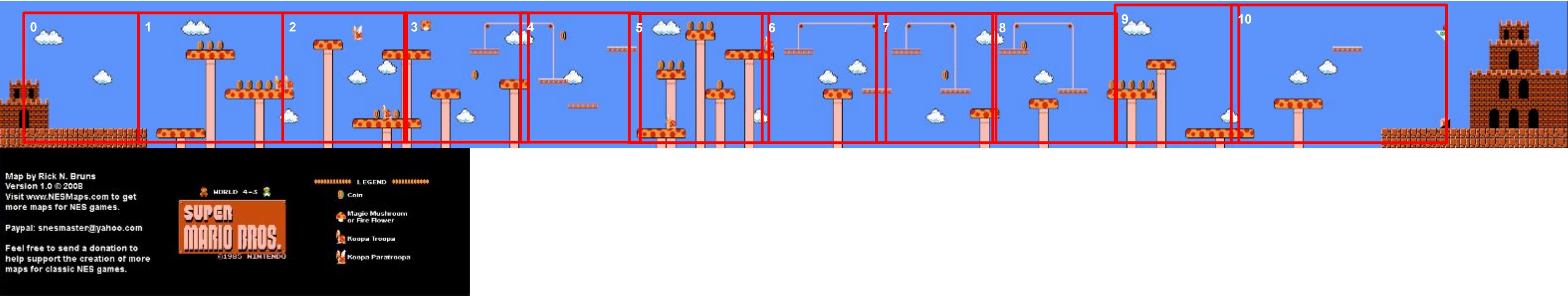| 0		1		2		3		4		5		6		7		8		9		10	
	- Beginning		- Enemy - Risk/Reward - gap		- Enemy		- enemy - gap - 2-path - risk/reward		- Enemy valley		- Pipe valley		- Bonus zone - Reward		- Gap - 2-path - Risk/reward - Enemy		- Variable gaps - Enemy		- Gap - enemy - 2-hord		- Stairs up - flagpole

WORLD 4-1

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■■■■■ LEGEND ■■■■■

- Coin
- Magic Mushroom or Fire Flower
- 1 up Mushroom
- Lakitu
- Spiny
- Spiny's Egg
- Piranha Plant

w4l2

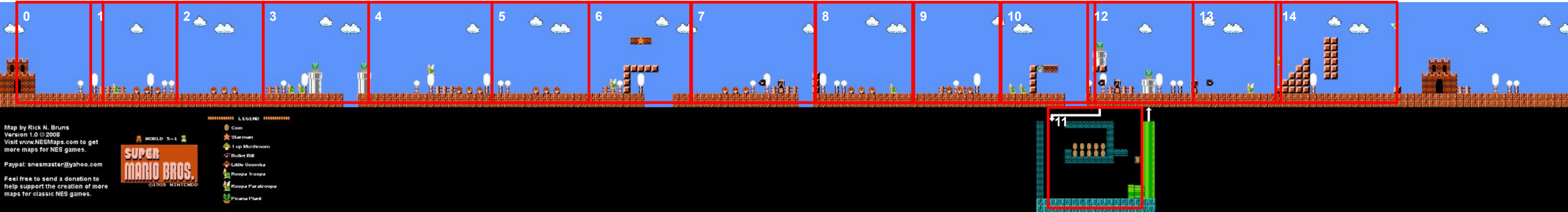| 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
- Bagin ning - Varia ble gaps	- Rewa rd	- 3-hor d - roof	- 2-pat h - Risk/ Rewa rd - Movi ng platfo rm - Gap	- Enem y valley - Roof - 2-pat h	- Bonu s zone - Stairs up	- Bonu s zone	- Enem y valley - Risk/ Rewa rd - Roof - 2-pat h	- Bonu s zone	- 2-hor d - Enem y valley	- Multi ple gaps	- 3-pat h - movi ng platfo rms - risk/r ewar d	- Enem y valley - Pipe valley	- Stairs up - movi ng platfo rms - multi ple gaps -	- risk/r ewar d - 2-hor d - roof - Stairs up	- empt y valley - gap	- Stairs up - Flagp ole	- Bonu s zone

w4l3

0	1	2	3	4	5	6	7	8	9	10
- beginning	- Variable gaps - 2-hord	- enemy - 2-path	- 2-path - reward - moving platform - Variable gaps	- Moving platforms - Variable gaps - 2-path	- enemy - 2-path - Variable gaps	- Variable gaps - moving platforms	- Variable gaps - moving platforms	- Variable gaps - moving platforms	- Variable gaps -	- Variable gaps - moving platforms - flagpole

w5l1

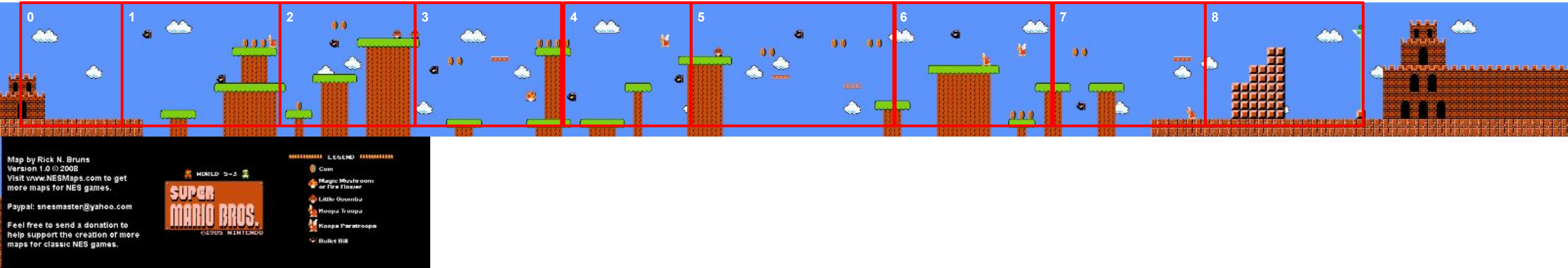| 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
- beginning	- enemy - 3-hord	- 3-hord	- 2-hord - gap - pipe valley	- enemy - 3-hord	- 3-hord	- enemy - gap - reward - 2-path	- 3-hord - gap - enemy	- 3-hord - enemy	- 3-hord	- 2-hord - gap - reward - enemy	- bonus zone	- 2-path - enemy -	- enemy	- stairs up - flagpole

w5l2

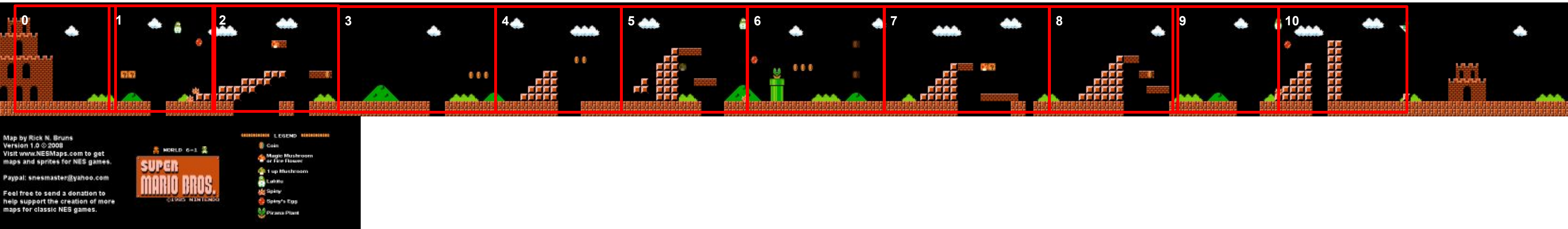| 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
- beginning	- stairs up - enemy -	- gap - 3-path - reward	- enemy - stairs up	- 2-hord - stairs up - gap	- bonus zone (aquaworld)	- 2-path -	- bonus zone (sky) - moving platform	- 2-path - gap	- enemy	- 3-path - enemy - risk/reward - gap - roof	- 3-hord - risk/reward - roof	- gap - 2-path - enemy - 2-hord	- 2-hord - 2-path - risk/reward - Variable gaps	- enemy - multiple gaps - stairs-up - flagpole

w5l3

0	1	2	3	4	5	6	7	8
- beginning	- Variable gaps - enemy	- Variable gaps - enemy - 2-hord	- Variable gaps - moving platform - enemy - reward - 2-path	- Variable gaps - enemy	- Variable gaps - moving platforms - enemy	- Variable gaps - enemy	- Variable gaps - enemy - moving platform	- stairs up - flagpole

w6l1

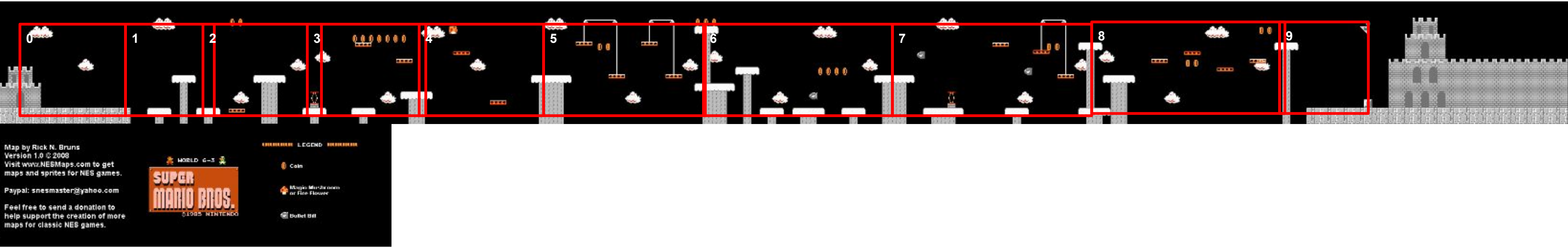| 0	1	2	3	4	5	6	7	8	9	10
- beginning	- gap - enemy - 2-hord -	- stairs up - 2-path - risk/reward - enemy - Variable gaps	- gap - enemy	- stairs up - gap - enemy	- stairs up - enemy - risk/reward - gap	- enemy	- stairs up - reward - enemy - roof - Variable gaps	- stairs up - gap - enemy	- gap - enemy	- stairs up - gap - flagpole - enemy

w6l2

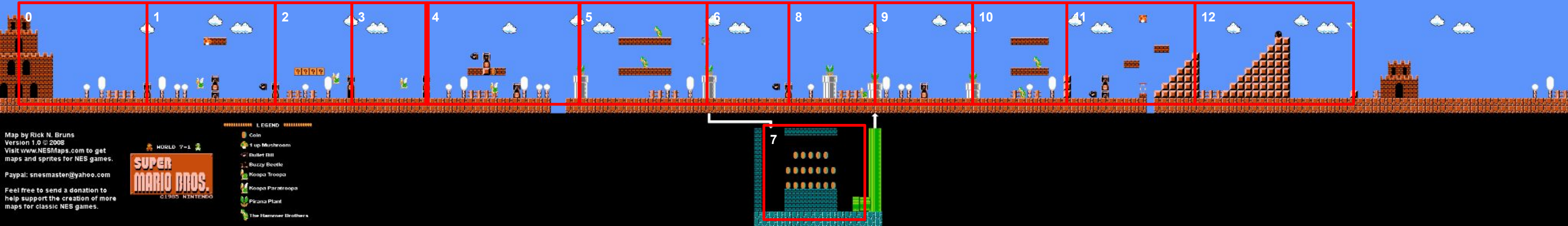| 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
- beginning - 2-path	- enemy valley - pipe valley - 2-path	- bonus zone	- enemy valley	- enemy valley - risk/reward - roof	- enemy valley	- bonus zone (waterworld)	- Empty valley - 2-path	- bonus zone (clouds)	- pipe valley - enemy	- empty valley	- pipe valley - 2-path	- 2-path - gap	- pipe walle y	- multiple gaps - risk/reward - stairs up	- 3-path - enemy	- bonus zone - reward	- pipe valley - stairs up	- staurs up - flagpole - enemy

w6l3

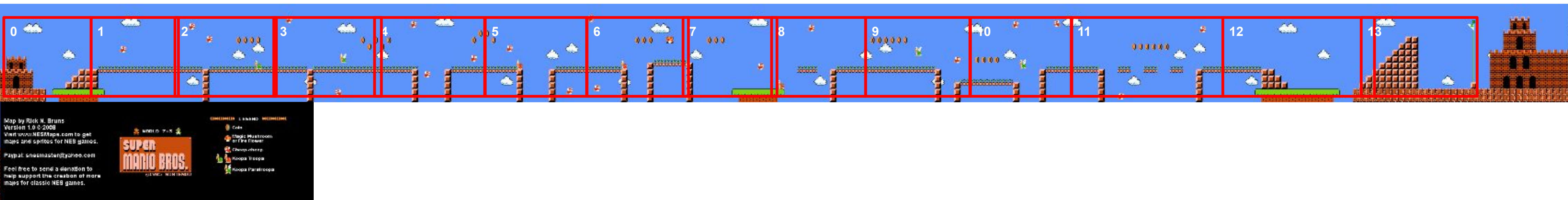| 0	1	2	3	4	5	6	7	8	9
- beginning	- Variable gaps	- Variable gaps - moving platform	- Variable gaps - moving platform - 2-path	- risk/rewarrd - Variable gaps - moving platform	- Variable gaps - moving platform	- Variable gaps - enemy	- Variable gaps - moving platform - enemy	- Variable gaps - moving platform	- gap - flagpole

w7l1

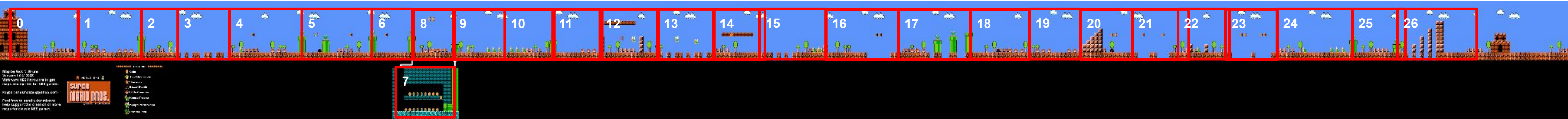| 0	1	2	3	4	5	6	7	8	9	10	11	12
- beginning - enemy	- enemy - enemy valley - risk/reward	- enemy valley - roof	- enemy valley	- enemy valley - roof - gap - 2-path	- 3-path - enemy - pipe valley	- enemy valley	- bonus zone	- empty valley - enemy valley	- empty valley - enemy valley	- 3-path - enemy	- 3-path - enemy valley - gap - stairs up	- stairs up - enemy - flagpole

WORLD 7-1

SUPER MARIO BROS.
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LEGEND

- Coin
- 1 up Mushroom
- Bullet Bill
- Buzzy Beetle
- Koopa Troopa
- Koopa Paratroopa
- Pirana Plant
- The Hammer Brothers

w7l3

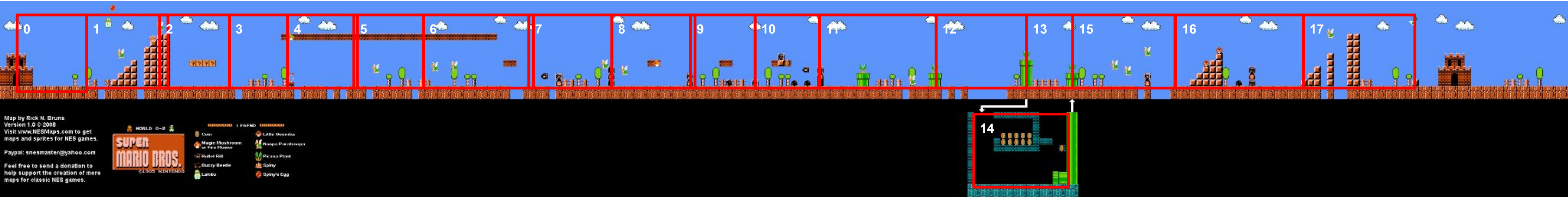| 0	1	2	3	4	5	6	7	8	9	10	11	12	13
- beginning - gap - stairs up	- enemy	- enemy	- enemy	- enemy - gap	- enemy - gap	- enemy - gap - risk/reward	- enemy - gap	- enemy - Variable gaps	- enemy - gap	- enemy - gap	- Variable gaps	- gap - stairs down	- stairs up - flagpole

w8l1

	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
- enemy 3-hord	- enemy valley - risk/reward - pipe valley	- pipe valley	- bonus zone	- 3-hord - enemy valley	- enemy - 3-hord	- 3-hord	- 3-hord - enemy valley	- enemy valley - 2-path	- 2-hord - Variable gaps	- reward - 2-path	- Variable gaps - 2-hord	- gap	- 3-hord - Pillar gaps	- enemy - 3-hord	-

w8l2

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
- beginning - enemy	- enemy - stairs up - multiple gaps	- 2-path - enemy	- gap - enemy	- multiple gaps - reward	- enemy - multiple gaps	- 2-hord - risk/reward - gap	- enemy - valley - gap	- enemy - valley - risk/reward - roof	- enemy - valley - roof	- 2-hord - enemy - valley - roof - 2-path	- empty - valley - gap - enemy - valley	- Variable gaps	- pipe valley	- bonus zone	- 3-hord - Variable gaps	- 2-hord - enemy - valley - stairs up	- enemy - stairs up - Variable gap - flagpole

WORLD 8-2

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LEGEND
- Coin
- Magic Mushroom or Fire Flower
- Bullet Bill
- Buzzy Beetle
- Lakitu
- Little Goomba
- Koopa Paratroopa
- Piranha Plant
- Spiny
- Spiny's Egg

w8l3

0	1	2	3	4	5	6	7	8	9	10	11	12
- beginning - enemy	- enemy valley	- empty valley	- 3-path - enemy - gap - risk/reward	- stairs down - gap - enemy	- enemy valley - empty valley	- 3-path - risk/reward - enemy	- Pillar gap	- enemy	- enemy	- enemy	- enemy	- stairs up - multiple gaps - flagpole