

DRUG TRENDS

Trends in the availability and types of drugs sold on the internet via cryptomarkets, October 2021 – September 2022

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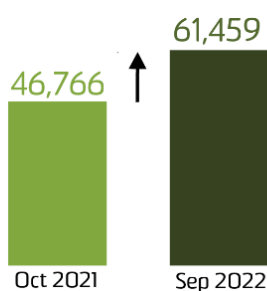
In the period from 1st October 2021 to 30th September 2022, 27 cryptomarkets were monitored.



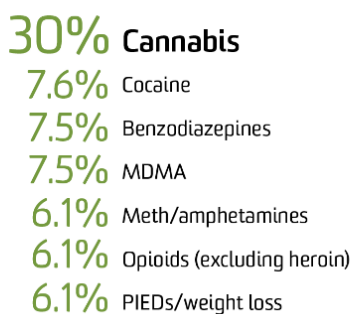
11 markets closed and 10 new markets were monitored from October 2021 to September 2022.

- 1 DarkFox
- 2 AlphaBay
- 3 ASAP
- 4 Bohemia
- 5 Incognito

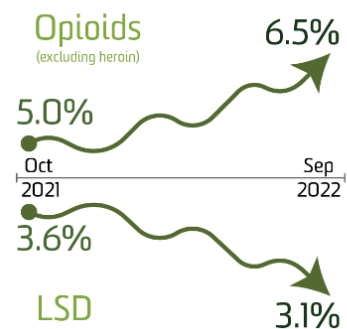
The largest cryptomarkets in the final month of monitoring (September 2022).



The average number of listings per snapshot increased by 2.8% per month from 46,766 in October 2021 to 61,459 in September 2022.



Top 7 drugs across cryptomarket listings from October 2021 to September 2022.



The market share of opioids (excluding heroin) showed the highest rate of increase while the greatest rate of decrease was observed for LSD.

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Key Findings

- From 1st October 2021 to 30th September 2022, 27 cryptomarkets were monitored, of which 11 closed before the end of the reporting period. We began monitoring 10 new cryptomarkets during this period.
- The five markets reaching more than 10,000 listings in a snapshot during this period were DarkFox, Dark0de, White House, Torrez and AlphaBay, of which only DarkFox and AlphaBay remained open as of end of September.
- In the final month of monitoring, DarkFox, AlphaBay, ASAP, Bohemia and Incognito were the largest cryptomarkets.
- The number of drug listings increased by 2.8% per month from October 2021 (average of 46,766 listings per snapshot) to September 2022 (average of 61,459 listings).
- Cannabis comprised the greatest percentage of drugs listings from October 2021 to September 2022 (30%), followed by cocaine (7.6%), benzodiazepines (7.5%), MDMA (7.5%), meth/amphetamine (illicit) (6.1%), opioids (excluding heroin) (6.1%) and PIEDs/weight loss drugs (6.1%).
- The market share of opioids (excluding heroin) showed the highest rate of increase from 5.0% in October 2021 to 6.5% in September 2022. The greatest rate of decrease in market share was observed for LSD from 3.6% in October 2021 to 3.1% in September 2022.



Note: The 11 cryptomarkets that closed before 30th September 2022 are in grey color font.

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Background

This bulletin series reports on trends in the availability and types of drugs sold on the internet via cryptomarkets over the last 12 months (a new bulletin is released typically every 4 months). The current bulletin focuses on analysis of drug listings on cryptomarkets from 1st October 2021 to 30th September 2022.

[Drug Trends](#) have identified, crawled (or ‘scraped’), extracted, categorised and analysed drug listings on cryptomarkets on a regular basis since 1st January 2014, formerly using VBA programming processes, and since 9th August 2018 using a range of programmed automated processes in Python that operate with minimal manual input. Following extraction of common text features across each listing (e.g., drug listing name, vendor name), individual listings are categorised according to a pre-specified classification structure using a rules-based approach through text-matching in the first instance, followed by a long short-term memory (LSTM) artificial neural network (target predictive percentage 90%) that has been trained on historically categorised listings for those not matched through the former process. Further background and information regarding the methods are available for [download](#).

Our reporting focuses on identified cryptomarkets which comply with the following: presented in English; have an accessible Tor link for scraping; have >1 vendor; vendors ship to and/or from Australia, or ship to and/or from multiple countries; and have had >100 drug listings. For a historical record of marketplaces monitored by Drug Trends, we refer the reader to our [interactive timeline](#).

Analyses are concentrated on listings advertising the sale of illicit drugs (e.g., heroin), key licit drugs (e.g., alcohol, tobacco, e-cigarettes) and pharmaceutical medicines, as well as drug-related paraphernalia (e.g., needles and syringes, colorimetric reagent kits). The process of categorising listings into drug classes is available in the Methods document [here](#).

An accompanying public [online interactive data visualisation](#) is available, allowing viewers to interact with data collected since February 2014. Data in the current bulletin and the accompanying interactive visualisation are presented as twice monthly snapshots in each of the two weeks starting on the 1st and 15th of each month. We present data on number of listings observed in a given snapshot in the bulletin (see **Panel A**). Data from previous bulletins were presented on a weekly basis. Please refer to [this interactive visualisation](#) and [the previous bulletin](#) for the weekly data.

Panel A. Terminology

- **Cryptomarkets** ('darknet markets') are anonymous online trading platforms that facilitate the purchasing of illicit goods and services via multiple sellers. Licit products (e.g., alcohol) may occasionally be traded on these platforms.
- A **snapshot** of the cryptomarkets is taken on a twice monthly basis, in the two weeks starting on the 1st and 15th of each month.
- **Number of listings** is the sum of listings per snapshot belonging to a specific market and/or drug class. For this measure, duplicate listings (defined as listings with identical names by a single vendor on a single market within the same snapshot) are removed. Listings are further deduplicated for quantity variants (see **section 5.2.1** in the [Methods](#) document).
- **Market size** is defined as the number of drug listings per snapshot, overall, by market or by drug class.
- **Market share** is defined as the percentage of total drug listings by drug class.
- **Average monthly percent change (AMPC)** is the relative percent change in number or percentage of listings per month estimated using the Joinpoint regression program ([National Cancer Institute, 2022](#)).

In this bulletin, we provide estimates of change over the 12-month reporting period by estimating average monthly percent change (AMPC) in number or proportion of listings per month. This is done using the Joinpoint regression program ([National Cancer Institute, 2022](#)) as detailed in the [Methods](#) document. While these data can be considered reasonable estimates for trends in drug availability, we cannot guarantee exhaustive and/or immediate identification and capture of cryptomarkets once they emerge. As a result, there are some cryptomarkets which have existed for periods of time before our first scrape, resulting in a lack of data availability for these periods. In this bulletin, we show the date of the first post on a subDread¹ for each monitored market to give an indication of when that market may have started. There can also be challenges in certain periods of time (e.g., distributed denial of service (DDoS) attacks on sites) that prevent a routine scrape of an identified market.

¹ Dread is a forum on the darkweb that is analogous to Reddit. A subDread is a forum group on Dread. The administrators of a cryptomarket often open a subDread for their cryptomarket. However, the market may not yet be fully functional as there can be several months of web development, beta testing and onboarding of vendors before a market becomes fully operational. Thus, it is likely that monitored cryptomarkets reported on in this bulletin reached our eligibility criteria sometime between their first subDread post and our first scrape.

Since our findings do not reflect the total of all cryptomarkets existing in the reporting period, the analysis and estimates in this bulletin should not be used to infer the number of drug listings across all cryptomarkets. Further, they should only be considered a proxy indicator of drug availability: we have not provided any metric that reflects sales or purchasing of drugs via cryptomarkets. See [here](#) for further discussion of caveats to interpretation.

There are various approaches to collecting, collating, categorising and analysing cryptomarket data, and inherent challenges in these processes. Our monitoring is an ongoing process. Refinements to our reporting processes in each bulletin are reported in the accompanying methods document. We welcome feedback and suggestions so that we can continue to improve utility of these data and our reporting on them (contact us at drugtrends@unsw.edu.au).

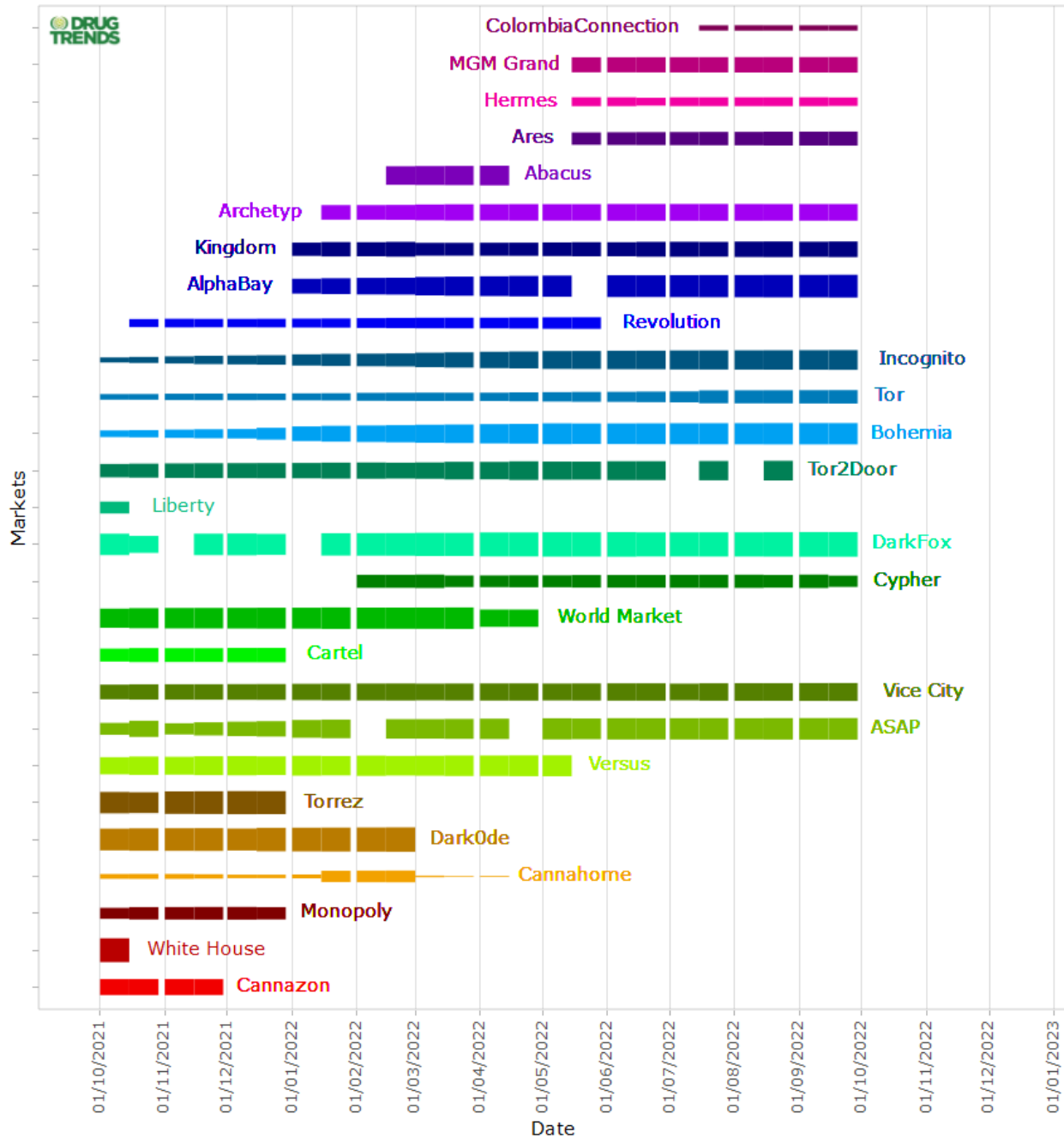
Findings

Profile of Cryptomarkets from 1st October 2021 to 30th September 2022

Which markets were monitored during this period?

The current bulletin reports findings for the period 1st October 2021 to 30th September 2022 for 27 cryptomarkets ([Figure 1](#)). See our [interactive timeline](#) for a historical record of the cryptomarkets monitored since February 2014. **Table 1** shows the characteristics of these cryptomarkets since the date of our first scrape, noting that some cryptomarkets may have existed for some time before we started scraping them.

Figure 1. Markets monitored from 1st October 2021 to 30th September 2022.



Note: There are short breaks at the end of each month because the twice-monthly snapshots are based on 2-week intervals starting on the 1st and 15th of each month, i.e. days of the month after the 28th are excluded from monitoring. Extended breaks indicate periods where market crawling was not achievable or incomplete. The width of the bar is proportional to the log of the number of drug listings observed in each snapshot for each market.

Which markets closed during this period?

Of the 27 markets monitored in this bulletin, 11 markets closed within the reporting period for the following purported reasons (**Table 1**).

- White House was last scraped in the snapshot of 1st October 2021. Market administrators officially announced its retirement on 1st October, 2021, claiming that they had reached their goal, suggesting they made a [voluntary exit](#) but there were also speculations that they were involved in [law enforcement investigations](#).
- Liberty was last scraped in the snapshot of 1st October 2021. Although there was no clear evidence of it being officially shutdown, the subDread discussion reported a possible exit scam.
- Cannazon was last scraped in the snapshot of 15th November 2021. Due to an extended and [massive Denial-of-service \(DDoS\) attack](#), the market announced they were officially retiring on 23rd November, 2021 and closed shortly after.
- Both Monopoly and Cartel were last scraped in the snapshot of 15th December 2021, closing [without apparent explanation](#) at virtually the same time.
- Torrez was last scraped in the snapshot of 15th December 2021. The market administrators officially claimed that they decided to [close Torrez for good](#), with indications that they were making a voluntary exit.
- Dark0de was last scraped in the snapshot of 15th February 2022. Due to an [exit scam](#), the market closed on 24th February 2022 without warning.
- Cannahome was last scraped in the snapshot of 1st April 2022. In early April 2022, Cannahome started closing down, with an [official announcement](#) claiming that it was time for them to move onto the next phase of their lives, suggesting a possible voluntary exit.
- World Market was last scraped in the snapshot of 15th April 2022, with online sources suggesting an [exit scam](#).
- Versus was last scraped in the snapshot of 1st May 2022. A [source](#) indicated that it was hacked and a security flaw was exposed on 25th May 2022. The market has been inaccessible since that time and its subDread has been archived.
- Revolution was inaccessible from the middle of May 2022. It is regarded as a closed defunct market with an unknown status as none of our searches on the internet or from our regular sources (e.g. Dread, Tor taxi) had any information on what might have happened.

Fourteen markets remained active and were still being monitored at the end of the reporting period. These comprised: ASAP, DarkFox, Vice City, Bohemia, Tor, Incognito, AlphaBay, Kingdom, Archetyp, Cypher, Ares, Hermes, MGM Grand and Colombia Connection (**Table 1**). We stopped scraping Abacus and Tor2Door because the CAPTCHA was too challenging for regular scraping and an access link needed to be purchased, respectively.

Table 1. Characteristics of markets reported on in this bulletin (ordered by date of first snapshot).

Market	Status as at Sep 2022 (reported reason ^a)	Earliest subDread post	First snapshot	Last snapshot	Duration in months ^b	Maximum number of listings ^c
Cannazon	<u>Closed</u> (DDoS)	14 th Mar 2018	15 th Apr 2018	15 th Nov 2021	43.5	2,161
Monopoly	<u>Closed</u> (unknown)	14 th Jul 2019	1 st Jan 2020	15 th Dec 2021	24	1,001
White House	<u>Closed</u> (voluntary exit)	24 th Aug 2019	1 st Jan 2020	1 st Oct 2021	21.5	13,582
Cannahome	<u>Closed</u> (unknown)	15 th Sep 2019	1 st Jul 2020	1 st Apr 2022	21.5	808
Dark0de	<u>Closed</u> (exit scam)	25 th May 2020	15 th Apr 2021 ^d	15 th Feb 2022	10.5	15,567
ASAP	Open	9 th Apr 2020	1 st May 2021 ^d	Ongoing ^e	17*	8,229
Torrez	<u>Closed</u> (voluntary exit)	14 th Apr 2020	1 st May 2021 ^d	15 th Dec 2021	8	11,393
Versus	<u>Closed</u> (hacked/security flaw)	6 th Aug 2019	1 st May 2021 ^d	1 st May 2022	12.5	6,840
Vice City	Open	26 th Aug 2020	1 st May 2021 ^d	Ongoing ^e	17*	3,364
Cartel	<u>Closed</u> (unknown)	15 th Jun 2020	15 th May 2021 ^d	15 th Dec 2021	7.5	1,492
World Market	<u>Closed</u> (exit scam)	14 th Nov 2020	15 th May 2021	15 th Apr 2022	11.5	7,855
Cypher	Open	8 th Feb 2020	1 st Jun 2021	Ongoing ^e	16*	1,192
DarkFox	Open	24 th Feb 2020	1 st Jun 2021 ^d	Ongoing ^e	16*	16,858
Bohemia	Open	23 rd May 2021	15 th Jul 2021	Ongoing ^e	14.5*	7,649
Liberty	Closed (possible exit scam)	12 th Dec 2020	15 th Jul 2021	1 st Oct 2021	3	833
Tor2Door	Ceased data collection	3 rd Jul 2020	15 th Jul 2021	15 th Aug 2022	13.5*	5,059
Tor	Open	Not found	15 th Aug 2021	Ongoing ^e	13.5*	1,193

Market	Status as at Sep 2022 (reported reason ^a)	Earliest subDread post	First snapshot	Last snapshot	Duration in months ^b	Maximum number of listings ^c
Incognito	Open	19 th Oct 2020	1 st Oct 2021	Ongoing ^e	12*	5,187
Revolution	Closed (unknown)	4 th Jun 2020	15 th Oct 2021	15 th May 2022	7.5	773
AlphaBay	Open	8 th Aug 2020	1 st Jan 2022	Ongoing ^e	9*	10,496
Kingdom	Open	3 rd May 2021	1 st Jan 2022	Ongoing ^e	9*	2,004
Archetyp	Open	19 th Apr 2020	15 th Jan 2022	Ongoing ^e	8.5*	2,682
Abacus	Ceased data collection	27 th Sep 2020	15 th Feb 2022	1 st Apr 2022	2	5,239
Ares	Open	26 th Aug 2021	15 th May 2022	Ongoing ^e	4.5*	1,372
Hermes	Open	15 th Apr 2020	15 th May 2022	Ongoing ^e	4.5*	406
MGM Grand	Open	26 th Apr 2021	15 th May 2022	Ongoing ^e	4.5*	1,952
Colombia Connection	Open	-- ^f	15 th Jul 2022	Ongoing ^e	2.5*	180

Note: ^a Most probable reason for closure is given in brackets. ^b Duration of monitoring is the number of months between the first and last snapshot, including when data could not be scraped from the cryptomarket. Where the cryptomarket was still active as of last snapshot during the 2 weeks starting 15th September 2022 (indicated by *), the duration has been computed as the number of months between the first snapshot and the snapshot dated 15th September 2022. ^c Maximum number of listings in a scrape is computed from the snapshots over the 12-month reporting period. ^d Markets were operational since February-July 2020 based on analysis of posts on Dread but we have not monitored them before May 2021. ^e Market was active as of the snapshot dated 15th September 2022. ^f The date could not be verified because Dread had been inaccessible for checking when we wrote this bulletin.

What markets were monitored for the first time during this period?

We began monitoring 14 cryptomarkets in this period. These are ([Figure 1](#) and [Table 1](#)):

- Incognito from 1st October 2021 (first snapshot);
- Revolution from 15th October 2021;
- AlphaBay² from 1st January 2022;
- Kingdom from 1st January 2022;
- Archetyp from 15th January 2022;
- Abacus from 15th February 2022;
- Ares from 15th May 2022;

² We had scraped a cryptomarket with the name AlphaBay between February 2015 and July 2017. The subDread of the new AlphaBay we are now scraping started on 8th Aug 2020. The administrators of the new AlphaBay claimed that they are based on the original AlphaBay.

- Hermes 15th May 2022;
- MGM Grand from 15th May 2022; and
- Colombia Connection from 15th July 2022.

Most of these markets are still active at the end of the monitoring period except for Revolution which was not accessible from mid-May 2022 onwards.

Which markets from this period have been monitored for the longest?

Of the 27 markets in this reporting period, Cannazon was the market we had been monitoring for the longest (**Table 1**). First reports of Cannazon on Dread appeared in March 2018 and scraping began in April 2018 (total duration of monitoring: 43.5 months). Our last snapshot was on 15th November 2021 as the market closed due to ongoing DDoS. Cannazon was a cannabis-specific cryptomarket reaching a maximum of 2,161 listings in a snapshot within the current reporting period (**Table 1**).

The next longest-lasting markets monitored within this reporting period were Monopoly (24 months), White House and Cannahome (both 21.5 months) (**Table 1**). First reports of these markets on Dread appeared between July and September 2019. Scraping of Monopoly and White House began in January 2020 until they closed in late 2021 while scraping of Cannahome started 6 months later in July 2020 and it ended in April 2022. We have not identified the existence of any cannabis-specific markets that met our inclusion criteria since the close of Cannazon and Cannahome.

The longest-lasting markets that were ongoing at the conclusion of the period were ASAP and Vice City. We started monitoring these markets at the beginning of May 2021 (i.e., for 17 months by the end of September 2022).

Which markets from this period were the largest in size based on number of drug listings?

The markets reaching more than 10,000 listings in a snapshot were (**Table 1**):

- DarkFox with maximum of 16,858 listings (in a snapshot);
- Dark0de with maximum of 15,567 listings;
- White House with maximum of 13,582 listings;
- Torrez with maximum of 11,393 listings; and
- AlphaBay with maximum of 10,496 listings.

All these markets except DarkFox and AlphaBay were no longer being scraped by the end of the reporting period, largely due to market closures.

In the final month of the reporting period (September 2022), there were 14 markets which were scraped (**Table 2**). The markets whose mean number of listings per snapshot was above the average of 4,390 listings (61,459/14) in September 2022 were:

- DarkFox with an average of 16,797 listings (per snapshot);
- AlphaBay with an average of 10,160 listings;
- ASAP with an average of 8,120 listings;
- Bohemia with an average of 7,582 listings; and
- Incognito with an average of 5,082 listings.

The smallest of the scraped cryptomarkets with an average of less than 1,000 listings per snapshot in the month of September 2022 were Colombia Connection, Hermes and Cypher (**Table 2**).

Did the total market size (based on number of drug listings in the 27 monitored markets) change over this period?

The market size (or number of listings) generally increased over the reporting period. This finding is supported when comparing the final month to the first month within the monitoring period (**Figure 2**), with an estimated average increase of 2.8% in number of listings per month in the 12-month period (**Table 2**).

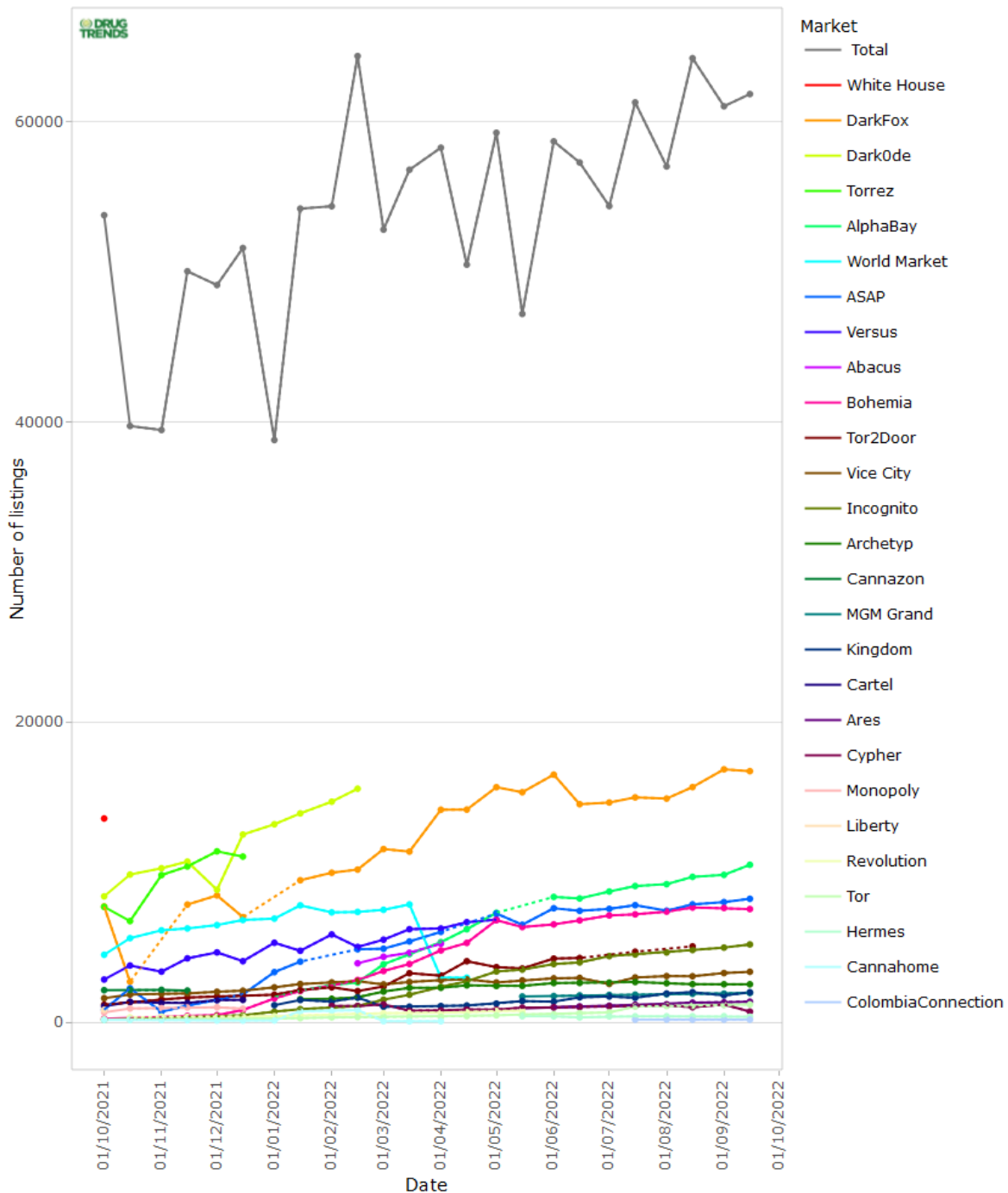
Short-term fluctuations in total number of listings can also be observed. Often, a momentary drop in the number of listings are apparent following a DDoS on one or a few of the larger cryptomarkets (e.g., DarkFox in the 1st February 2022 snapshot; see **Figure 2**). Note that occasionally the fluctuation in total number of listings was because we could not complete the scrapes (e.g. scripting error for AlphaBay in February 2022).

Table 2. Number of drug listings and average monthly percent change (AMPC) on the markets monitored from 1st October 2021 to 30th September 2022.

Market (Number of months)	Market size (Number of listings)				AMPC ^a	P ^b
	First snapshot	Last snapshot	Mean in Oct 2021	Mean in Sep 2022		
DarkFox (12)	7,716	16,736	5,210	16,797	9.0 (-0.2, 19.1)	0.056
Vice City (12)	1,605	3,364	1,727	3,323	5.8 (4.5, 7.2)	<0.001
ASAP (12)	837	8,229	1,550	8,120	20.0 (14.4, 25.8)	<0.001
Bohemia (12)	241	7,545	257	7,582	35.4 (32.5, 38.2)	<0.001
Tor (12)	188	1,193	190	1,174	17.4 (13.1, 21.8)	<0.001
Incognito (12)	167	5,187	190	5,082	34.4 (32.5, 36.4)	<0.001
Tor2Door (11)	1,171	5,059	1,259	(ceased scraping)	14.8 (12.6, 17.1)	<0.001
AlphaBay (9)	1,666	10,496	(not started)	10,160	23.7 (21.6, 25.8)	<0.001
Kingdom (9)	1,138	2,000	(not started)	1,896	7.3 (0.7, 14.3)	0.028
Archetyp (8.5)	1,540	2,533	(not started)	2,533	7.0 (4.7, 9.3)	<0.001
Cypher (8)	1087	712	(suspended) ^e	950	-0.7 (-3.6, 2.3)	0.643
Versus (7.5)	2,851	6,840	3,316	(closed)	11.4 (8.8, 14.1)	<0.001
Revolution (7.5)	331	773	331	(closed)	12.0 (8.0, 16.2)	<0.001
World Market (7)	4,499	7855 ^d	5,053	(closed)	10.7 (7.4, 14.2)	<0.001
Cannahome (6.5)	156	65	159	(closed)	-22.5 (-55.4, 34.7)	0.366
Dark0de (5)	8,393	15,567	9,119	(closed)	14.1 (8.9, 19.5)	0.000
MGM Grand (4.5)	1,719	1,952	(not started)	1,932	3.2 (2.8, 3.6)	<0.001
Ares (4.5)	918	1,372	(not started)	1,350	10.8 (8.5, 13.1)	<0.001
Hermes (4.5)	406	369	(not started)	386	0.3 (-4.4, 5.2)	0.886
Torrez (3)	7,692	11,042	7,218	(closed)	21.7 (4.0, 42.4)	0.025
Cartel (3)	1,061	1,492	1,213	(closed)	11.7 (0.7, 23.8)	0.041
Monopoly (3)	659	903	789	(closed)	14.2 (2.1, 27.8)	0.020
Colombia Connection (2.5)	175	177	(not started)	177	0.0 (-2.4, 2.5)	0.995
Abacus (2)	3,930	5,239	(not started)	(ceased scraping)	20.3 (12.2, 28.9)	0.008
Cannazon (2)	2,139	2,113	2,146	(closed)	-0.7 (-4.7, 3.6)	0.568
White House (0.5)	13,582	13,582	13,582	(closed)	-- ^c	-- ^c
Liberty (0.5)	833	833	833	(closed)	-- ^c	-- ^c
Overall^f (12)	53,790	61,865	46,766	61,459	2.8 (1.4, 4.2)	<0.001

Note: ^a Average monthly percent change (AMPC) in number of listings is the estimated percent change in number of listings on the cryptomarket (or market size) per month. Because regular data points are required, intervening data points with no data were interpolated for estimating AMPC. ^b P-values indicate the statistical significance of the estimated AMPC. The estimates that are statistically significant at P<0.05 are highlighted in bold. ^c The AMPC could not be estimated because there is only one datapoint. ^d The last 2 snapshots for World Market in April 2022 were removed because they were incomplete or drastically reduced as the market started to shutdown. ^e We suspended data collection for Cypher from July 2021 to January 2022 because of difficulties extracting the data. ^f Note that the estimates in the 'Overall' row is derived from total number of listings in the overall market in the period. As such, the estimated mean in market size for individual markets do not add up to the overall in each column.

Figure 2. Number of drug listings by marketplace from 1st October 2021 to 30th September 2022.



Note: Dashed lines indicate missing scrapes over periods where a market could not be monitored. The dark grey line shows the total number of drug listing across all markets monitored at a given time. The markets are ordered by average number of listings per snapshot over the 12-month period as shown in **Table 2**.

Did the size of the markets that were active in September 2022 change over the period?

Six markets (i.e. DarkFox, Vice City, ASAP, Bohemia, Tor and Incognito) were scraped in both the first and latest month of the 12-month period. All but DarkFox increased significantly in size, with Bohemia and Incognito having the greatest increase of 35.4% and 34.4% per month, respectively, followed by ASAP (20.0% per month) and Tor (17.4% per month) (**Table 2**). Note that while the increase in size over the period was not statistically significant, DarkFox was still the largest market in September 2022.

Another 8 markets were monitored in September 2022 but started (or restarted – see footnote d in **Table 2**) later in this 12-month period. Of these, 5 markets – AlphaBay, Kingdom, Archetyp, MGM Grand and Ares – had a significant rate of increase in size (or number listings), with AlphaBay increasing at the fastest rate (23.7% per month) and for the longest time (i.e., over 9 months). Cypher, Hermes and Colombia Connection remained stable in size over the reporting period.

Main Drugs Sold via Cryptomarkets from 1st October 2021 to 30th September 2022

What were the main drugs sold via cryptomarkets during this period?

Cannabis comprised the bulk of the listings identified across all markets over the 12-month period (30%) (see **Table 3** and **Figure 3**). This was followed by:

- Cocaine (7.6% of listings);
- Benzodiazepines (7.5%);
- MDMA (7.5%);
- Meth/amphetamine (illicit) (6.1%);
- Opioids (excluding heroin), (6.1%); and
- PIEDs/weight loss drugs, (6.1%).

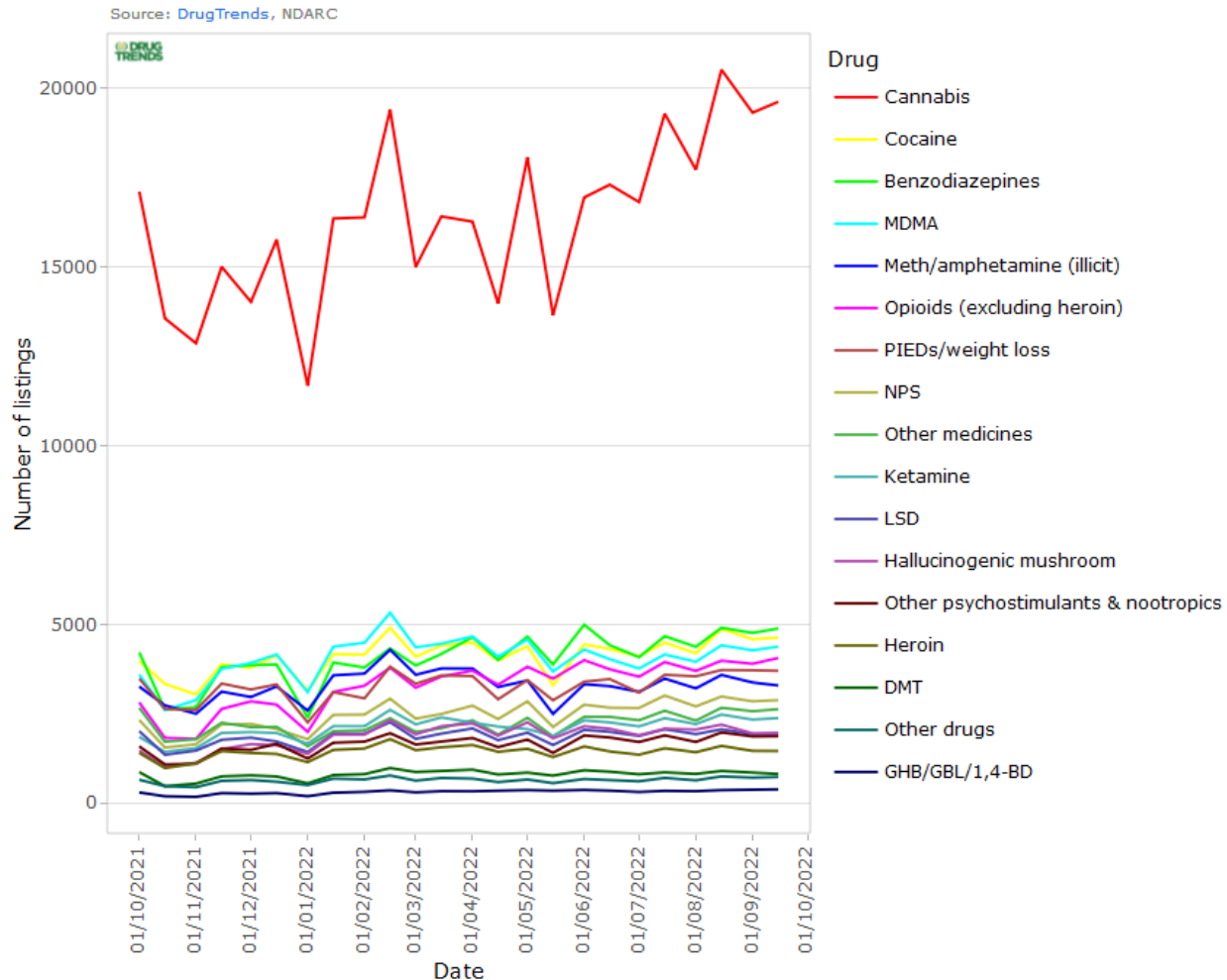
New psychoactive substances comprised 4.6% of listings, however it should be noted that the percentage of NPS listings is considerably higher than reported in the [last bulletin](#) because of the revised method of drug categorisation (see **section 5.1.2** and **Table 3** in the [Methods](#) document).

Table 3. Market share (percentage of listings) by drug class, and their average monthly percent change (AMPC) from October 2021 to September 2022.

Drug	Market share (percentage of listings) ^a			Average monthly percent change (AMPC) ^b	
	Overall	Oct 2021	Sep 2022	AMPC (%) ^a	P ^c
Cannabis	30	33	32	0.00 (-0.83, 0.83)	0.998
Cocaine	7.6	7.8	7.5	-0.56 (-0.95, -0.18)	0.006
Benzodiazepines	7.5	7.3	7.8	1.0 (0.2, 1.8)	0.017
MDMA	7.5	6.6	7.0	0.70 (-0.49, 1.90)	0.251
Meth/amphetamine (illicit)	6.1	6.4	5.4	-1.1 (-3.4, 1.2)	0.345
Opioids (excluding heroin)	6.1	5.0	6.5	2.4 (1.1, 3.7)	<0.001
PIEDs^d/weight loss drugs	6.1	6.5	6.0	-1.1 (-2.1, -0.1)	0.037
NPS	4.6	4.2	4.7	1.2 (0.7, 1.6)	<0.001
Other medicines	4.1	4.7	4.2	-1.0 (-1.8, -0.1)	0.021
Ketamine	3.9	3.5	3.8	0.92 (-0.44, 2.30)	0.185
LSD	3.5	3.6	3.1	-1.4 (-2.3, -0.4)	0.006
Hallucinogenic mushroom	3.4	2.7	3.2	1.8 (0.4, 3.3)	0.015
Other psychostimulants & nootropics	3.1	2.9	3.0	0.80 (-0.10, 1.71)	0.081
Heroin	2.7	2.6	2.4	-0.35 (-1.52, 0.83)	0.560
DMT	1.5	1.4	1.4	-- ^f	-- ^f
Other drugs	1.2	1.2	1.2	-- ^f	-- ^f
GHB/GBL/1,4-BD	0.59	0.53	0.61	-- ^f	-- ^f
Overall^e	100	100	100	--	--

Note: ^a Market share is the proportion of the number of listings of the drug as a percentage of the number of all drug listings per snapshot across all marketplaces observed in the stated period. ^b Average monthly percent change (AMPC) in market share is the estimated relative percent change in percentage of listings of the particular drug per month. ^c P-value indicate the statistical significance of the estimated AMPC. The estimates that are statistically significant at P<0.05 are highlighted in bold. ^d PIEDs: performance and image enhancing drugs. ^e The overall row includes all drug listings presented including those not shown in this table. Paraphernalia, MDA, PCP, tobacco, alcohol, e-cigarettes and inhalants are not shown in this table due to small values, with each comprising <0.5% of the overall market share. ^f Estimates of AMPC for market share are not shown where overall percentage of listings of the drug is <2% due to unreliability of estimates.

Figure 3. Number of listings disaggregated by drug class for all markets from 1st October 2021 to 30th September 2022.



Note: Drug classes that each make up <0.5% of listings over the reporting period are excluded in this figure. These are paraphernalia, MDA, PCP, tobacco, alcohol, e-cigarette and inhalants.

Has there been a change in market size (based on the number of listings) for certain drugs over this period?

As noted earlier, there was an estimated average increase of 2.8% per month in overall market size from October 2021 to September 2022. The market size of the following drugs increased significantly at a rate above the overall AMPC of 2.8% per month (**Table 4**):

- Opioids (excluding heroin) (5.6% per month);
- Hallucinogenic mushrooms (5.0% per month);
- GHB/GBL/1,4-BD (4.5% per month), although the number of listings were still small;

- NPS (3.9% per month);
- Benzodiazepines (3.8% per month);
- Ketamine (3.2% per month); and
- Other psychostimulants & nootropics (3.1% per month).

The average monthly percent change (AMPC) of cannabis (2.7%), DMT (2.6%), cocaine (2.2%), other drugs (2.0%), PIEDs/weight loss drugs (1.9%) and LSD (1.7%) were also significant over this 12-month period (**Table 4**).

Table 4. Market size (number of listings) by drug class and their average monthly percent change (AMPC) from October 2021 to September 2022.

Drug	Market size (Number of listings) ^a			Average monthly percent change (AMPC) ^b	
	Overall	Oct 2021	Sep 2022	AMPC (%) ^a	P ^c
Cannabis	16,368	15,326	19,457	2.7 (1.3, 4.2)	0.001
Cocaine	4,119	3,659	4,608	2.2 (0.8, 3.5)	0.003
Benzodiazepines	4,077	3,417	4,823	3.8 (2.0, 5.7)	<0.001
MDMA	4,056	3,101	4,327	2.6 (-0.2, 5.5)	0.072
Meth/amphetamine (illicit)	3,289	2,999	3,335	1.0 (-0.6, 2.6)	0.200
Opioids (excluding heroin)	3,286	2,323	3,981	5.6 (3.7, 7.6)	<0.001
PIEDs^d/weight loss drugs	3,278	3,063	3,712	1.9 (0.5, 3.4)	0.011
NPS	2,465	1,943	2,866	3.9 (2.4, 5.5)	<0.001
Other medicines	2,218	2,194	2,602	0.21 (-4.04, 4.65)	0.924
Ketamine	2,117	1,644	2,361	3.2 (0.8, 5.6)	0.008
LSD	1,868	1,686	1,933	1.7 (0.3, 3.1)	0.018
Hallucinogenic mushroom	1,860	1,242	1,962	5.0 (2.0, 8.0)	0.001
Other psychostimulants & nootropics	1,659	1,338	1,872	3.1 (1.6, 4.7)	<0.001
Heroin	1,439	1,196	1,463	1.9 (-0.7, 4.6)	0.155
DMT	807	675	833	2.6 (0.7, 4.5)	0.011
Other drugs	645	568	727	2.0 (0.6, 3.5)	0.008
GHB/GBL/1,4-BD	317	250	378	4.5 (2.6, 6.4)	<0.001
Overall^e	54,020	46,766	61,459	2.8 (1.4, 4.2)	<0.001

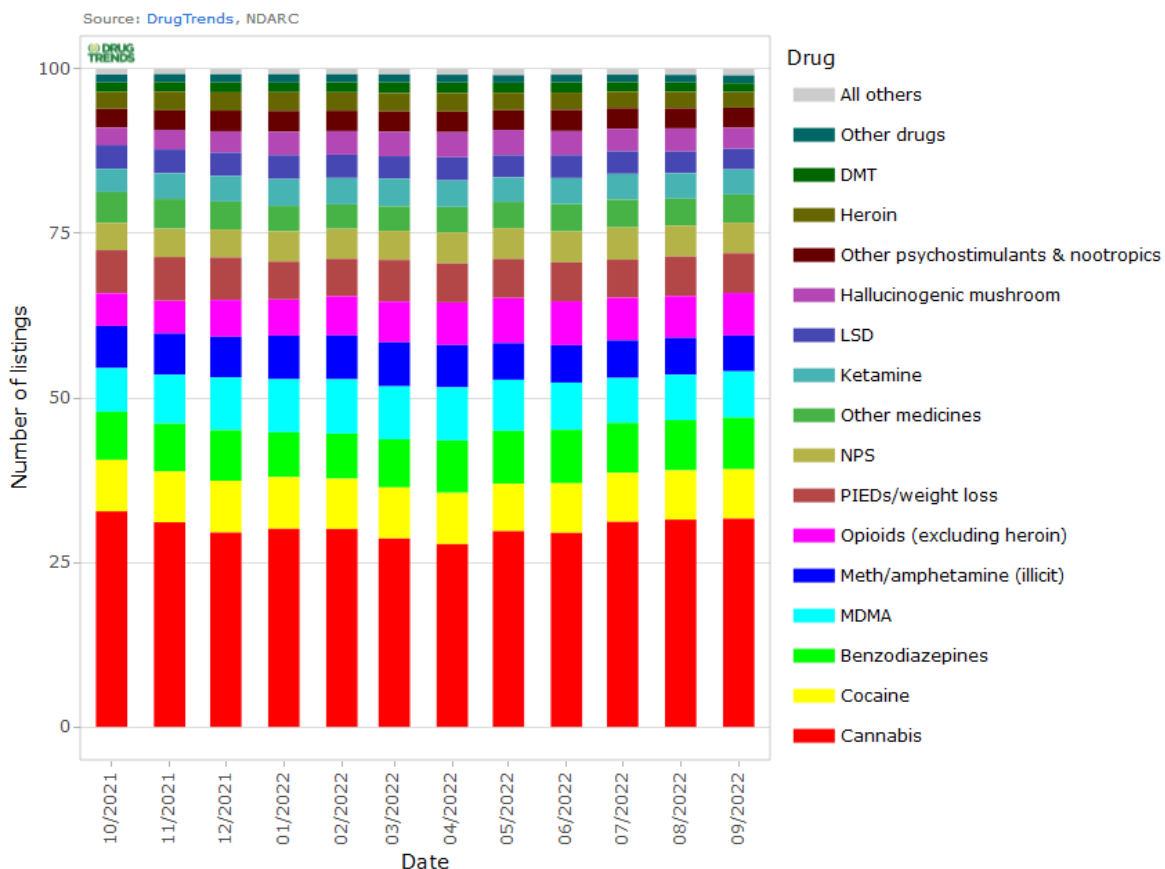
Note: ^a This shows the mean number of listings per snapshot across all marketplaces observed in the stated period. ^b Average monthly percent change (AMPC) in market size is the estimated relative percent change in number of listings of the particular drug per month. ^c P-value indicate the statistical significance of the estimated AMPC. The estimates that are statistically significant at P<0.05 are highlighted in bold. ^d PIEDs: performance and image enhancing drugs. ^e The overall row includes all drug listings presented including those not shown in this table. Paraphernalia, MDA, PCP, tobacco, alcohol, e-cigarettes and inhalants are not shown in this table due to small values, with each comprising <0.5% of the overall market share.

Did the market share of main drugs sold via cryptomarkets change during this period?

Opioids excluding heroin had the greatest rate of increase in market share when comparing October 2021 to September 2022 (2.4% per month³; 5.0% to 6.5% of all drug listings, respectively; **Table 3** and **Figure 4**). The following drugs also had a significant rate of increase in market share:

- Hallucinogenic mushrooms (from 2.7% to 3.2%);
- NPS (from 4.2% to 4.7%); and
- Benzodiazepines (from 7.3% to 7.8%).

Figure 4. Percentage breakdown of listings by month and drug class over time from October 2021 to September 2022.



Note: "All others" comprise of drugs or related products that each make up <0.5% of listings over the reporting period. These are paraphernalia, MDA, PCP, tobacco, alcohol, e-cigarette and inhalants.

³ Please note that the average monthly percent change (AMPC) of 2.4% per month is estimated as relative percent change in market share of the drug in the current month compared with the previous month.

LSD had the greatest rate of decrease in market share from October 2021 to September 2022 (-1.4% per month from 3.6% to 3.1% of all drug listings, respectively; **Table 3** and **Figure 4**). The following drugs also had a significant rate of decrease in market share:

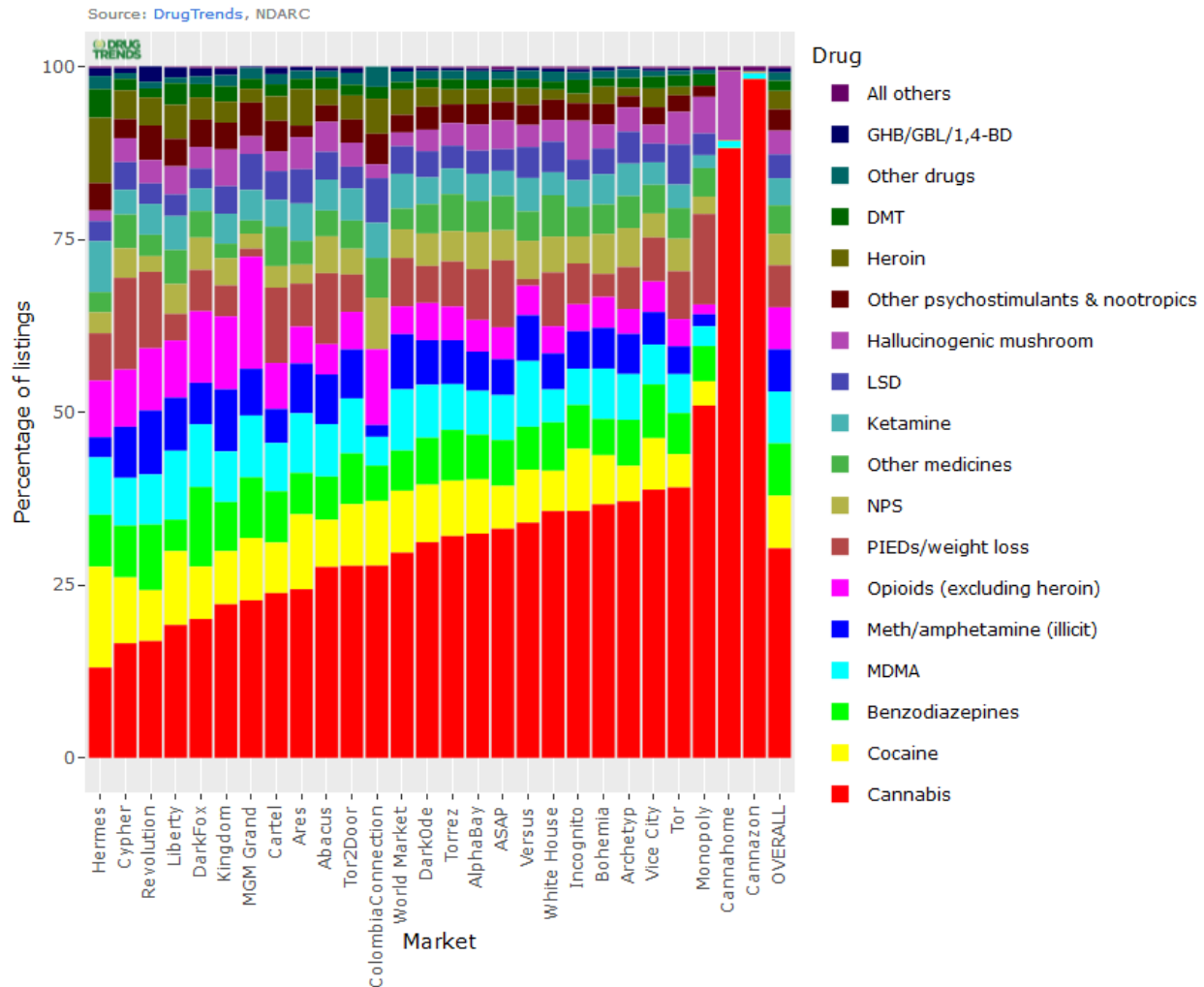
- PIEDs/weight loss drugs (from 6.5% to 6.0%);
- Other medicines (from 4.7% to 4.2%); and
- Cocaine (from 7.8% to 7.5%).

What drugs did the different markets sell over this period?

Figure 5 shows the breakdown of listings by drug class per market during the 12-month reporting period. The analyses shows that most markets monitored listed an array of different drugs. While the two cannabis-specific markets (Cannahome and Cannazon) comprised >90% cannabis, these closed in April 2022 and November 2021, respectively (see **Table 1**). Outside of these two markets, the market share of cannabis varied between 13% for Hermes and 51% for Monopoly.

DarkFox, which was one of the largest markets in the reporting period, had the highest proportion of benzodiazepines in its listings (12%, compared with 7.6% of the overall market). Compared with other markets, Hermes, Ares and Liberty had the highest proportion of cocaine listings on their markets (15%, 11% and 11%, respectively, compared with 7.6% of the overall market), and MGM Grand had the highest proportion of listings for opioids (excluding heroin) (16% compared with 6.1% of the overall market). Monopoly and Cypher had the highest percentages of PIEDS/weight loss drugs listings (13%, respectively), followed by Cartel (11%, compared with 6.1% of the overall market). Columbia Connection had the highest percentage of NPS (7.5%, compared with 4.6% of the overall market) and LSD (6.4%, compared with 3.5% of the overall market) listings. Note, however, that Columbia Connection was a small market which we only started scraping 2.5 months ago on the 15th July 2022. Hermes had the highest proportion of ketamine (7.4%, compared with 3.9% of the overall market), heroin (9.5%, compared with 2.7% of the overall market) and DMT (4.1%, compared with 1.5% of the overall market) listings. Cannahome had the largest proportion of hallucinogenic mushroom listings (10%), followed by Incognito (5.7%, compared with 3.4% of the overall market) (**Table 3**).

Figure 5. Drug composition of markets monitored from 1st October 2021 to 30th September 2022 (in ascending order by proportion of cannabis listings, and overall market in last column).



Note: This figure displays drug class percentage of all listings observed from 1st October 2021 to 30th September 2022 for each marketplace monitored. "All others" comprise of drugs or related products that each make up <0.5% of listings over the reporting period. These are paraphernalia, MDA, PCP, tobacco, alcohol, e-cigarette and inhalants.

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Ethical approval

This project has institutional approval and ethical approval from the University of New South Wales Human Research Ethics Committee (HC180004).

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Related Links:

Data visualisations: <https://drugtrends.shinyapps.io/cryptomarkets>

For more research from the Drug Trends program go to: <https://ndarc.med.unsw.edu.au/program/drug-trends>

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